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Title: EMERGENCY RELIEF SYSTEM

Inventor: David A. Hammond

Application No.: 09/963,734

Filed: September 26, 2001

Enclosed:

1. Transmittal Form (1 pg) in triplicate
2. Transmittal of Appellant's Appeal Brief (2 pgs.) in triplicate
3. Appellant's Appeal Brief (23 pgs) including an Appendix A – Pending Claims in triplicate
4. Appendix B – Dictionary Citation (2 pgs.) in triplicate
5. Thirteen (13) References in triplicate
6. Check in the amount of $165.00
7. Return postcard

Carla Serrano
Typed or Printed Name

Signature

Attorney Docket No. **P1299CON3**
Client No. 081361/0002

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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Application Number	09/963,734
Filing Date	September 26, 2001
First Named Inventor	David A. HAMMOND
Group Art Unit	3728
Examiner Name	Jila M. Mohandesi
Total Number of Pages in This Submission: 6	Attorney Docket Number: P1299CON3

ENCLOSURES *(check all that apply)*

- ☐ Fee Transmittal Form
- ☒ Fee Attached
- ☐ Amendment / Response
- ☐ After Final
- ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☐ Information Disclosure Statement
- ☐ Certified Copy of Priority Document(s)
- ☐ Response to Missing Parts/ Incomplete Application
  - ☐ Response to Missing Parts under 37 CFR 1.52 or 1.53
- ☐ Assignment Papers *(for an Application)*
- ☐ Drawing(s)
- ☐ Licensing-related Papers
- ☐ Petition Routing Slip (PTO/SB/69) and Accompanying Petition
- ☐ Petition to Convert to a Provisional Application
- ☐ Power of Attorney, Revocation Change of Correspondence Address
- ☐ Terminal Disclaimer
- ☐ Small Entity Statement
- ☐ Request for Refund
- ☐ After Allowance Communication to Group
- ☐ Appeal Communication to Board of Appeals and Interferences
- ☒ Appeal Communication to Group (22 pgs.) *(Appeal Notice, Brief, Reply Brief)*
- ☐ Proprietary Information
- ☐ Status Letter
- ☒ Additional Enclosure(s) *(please identify below)*:
  Certificate of Mailing under 37 CFR 1.10; Appendix B; Thirteen (13) References; Post Card

Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name	George M. Carrera, Jr., Reg. No. 50,317 Gardner Carton & Douglas LLP
Signature	George M. Carrera, Jr.
Date	March 26, 2004

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Typed or printed name	Carlos Carrasco		
Signature		Date	March 26, 2004

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CH02/ 22301448.1

PATENT
Attorney Docket No. P1299CON3

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:

David A. Hammond

Application No. 09/963,734

Filed: September 26, 2001

Art Unit: 3728

Examiner: Jila M. Mohandesi

For: EMERGENCY RELIEF SYSTEM

TRANSMITTAL OF APPELLANT'S APPEAL BRIEF

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In accordance with 37 CFR 1.192, appellant hereby submits Appellant's Brief on Appeal in triplicate.

The items checked below are appropriate:

1. Status of Appellant

This application is on behalf of ☐ other than a small entity or ☒ a small entity.

2. Fee for Filing Brief on Appeal

Pursuant to 37 CFR 1.17(c), the fee for filing the Brief on Appeal is for: ☐ other than a small entity or ☒ a small entity.

Brief Fee Due $165.00

3. Oral Hearing

☐ Appellant requests an oral hearing in accordance with 37 CFR 1.17(d).

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Date: 3-26-04

4. Extension of Time

☐ Appellant petitions for a one-month extension of time under 37 CFR 1.136, the fee for which is $.

☒ Appellant believes that no extension of time is required. However, this conditional petition is being made to provide for the possibility that appellant has inadvertently overlooked the need for a petition and fee for extension of time.

Extension fee due with this request: $0.00

5. Total Fee Due

The total fee due is:

Brief on Appeal Fee	$ 165.00
Request for Oral Hearing	$ 0.00
Extension Fee (if any)	$ 0.00

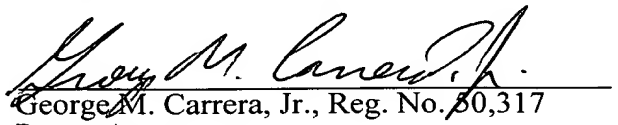
Total Fee Due: $165.00

6. Fee Payment

☒ Attached is a check in the sum of $165.00
☐ Charge Account No. 07-0181 the sum of $. A duplicate of this transmittal is attached.

7. Fee Deficiency

☒ If any additional fee is required in connection with this communication, charge Account No. 07-0181. A duplicate copy of this transmittal is attached.



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Date: March 26, 2004

CH02/ 22301460.1

PATENT
Attorney Docket No. P1299CON3

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:

David A. Hammond — Art Unit: 3728

Application No.: 09/963,734 — Examiner: Jila M. Mohandesi

Filed: September 26, 2001

Title: EMERGENCY RELIEF SYSTEM

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

APPELLANT'S APPEAL BRIEF

Sir:

Appellant submits this Appeal Brief in support of the Notice of Appeal mailed to the Patent Office on January 27, 2004. The Appeal was taken from the Office action dated August 4, 2003.

I. REAL PARTY IN INTEREST

The real party in interest is DLH, Inc., the assignee of this application.

II. RELATED APPEALS AND INTERFERENCES

No other appeals or interferences are known to the Appellant that will directly affect or be directly affected by the Board's decision in this Appeal.

III. STATUS OF CLAIMS

Claims 1-10 are pending in the patent application, as originally filed. A copy of the pending claims is attached hereto as the Appendix. The Office action dated August 4, 2003 rejects claims 1-10 under 35 U.S.C. § 103(a). The current rejection is a second rejection of claims 1-10 as originally filed.

IV. STATUS OF AMENDMENTS

All Amendments have been entered in this application.

V. SUMMARY OF INVENTION

The present invention relates in general to first aid kits and, in particular, to a first aid kit which is adaptable to a plurality of first aid environments, according to the triage principle. Specification, page 1, lines 7-8, and page 3, lines 18-21.

The emergency relief system, or, equivalently, first aid kit, of the present invention includes a first kit comprising a carrying case that includes means for providing quick access to the contents carried by the case. The carrying case further provides, on the inside, a plurality of compartments arranged in sequence to obtain a columnar array providing a card catalogue/file cabinet-like effect. Contained in the sequential compartments are first aid packs which are specifically designed with products and instructions appropriate for a particular first aid situation. Specification, page 2, lines 2-8. Additionally, each of the packs contains medical products specifically selected for different types of first aid situations as well as an instructional card that gives quick reference instructions for administration of assistance in these situations.

Specification, page 2, lines 12-14. Additionally, each pack is designated by a unique icon that is recognizable in any language. The icons are utilized within the detailed guidebook as well as on the first aid kit overview card. Specification, page 2, line 22 to page 3, line 1.

As shown in Figure 3, the base 16 of the first aid kit 10 defines a plurality of compartments 37. Each compartment 37 is sequentially oriented in front of the subsequent compartment. By so orienting the compartments 37 in this manner, a card catalogue/file cabinet like effect is provided in which contents can be carried in each compartment 37 in an easy to identify upright position. Additionally, in each of the compartments 37, flexible walls 39 are used such that contents of different thickness can fit into each of the compartments 37.

The contents of the first aid kit 10 include a plurality of packs 40. Each of the packs 40 consist of a plastic bag, an instructional card and a plurality of medical supplies provided for specific types of first aid situations. The first aid kit 10 further contains a detailed guidebook 46, which explains the use of the medical products in different types of first aid situations. In a further preferred embodiment, the first aid kit 10 contains an instructional guide 48 in video and/or audio format, which helps train the user on the use of the first aid kit 10. A card 50 is provided which contains an overview of the first aid kit 10.

In one embodiment, the packs 40 may be arranged in the compartments 37 in an order based on the seriousness of the injury, or type first aid situation, for which the medical supplies in a pack are provided. Thus, when the first aid kit 10 is opened to provide access to the contents of the first aid kit 10, the compartment 37 closest to a first aid emergency responder using the first aid kit 10 may contain a pack 40 that contains medical supplies for treating the most serious type of injury. The next compartment 37 in sequence may contain a pack that contains medical supplies for treating the next most serious type of injury, and so on. Thus, the first aid kit 10 of

the present invention provides a structure such that packs 40 may be organized in the first aid kit 10 in order of injury seriousness, thus providing a structure that emulates the principles of triage. Specification, p. 6, line 19 to p. 7, line 18.

Figures 5-7 show examples of packs in different embodiments. Utilizing this format, the packs 40 include contents directed toward specific first aid situations, as well as instructional cards 73 to direct the user how to use the products to care for the injured patient. In order to use one of the packs 40, the user opens the pack 40 along a tear line 88 that is provided on the pack 40. The pack 40 is provided sealed to maintain the sterility of the contents of the pack 40 while the tear line 88 allows the user easy access to the pack 40. In the preferred embodiment described herein, the tear line 88 is made according to the description provided in U.S. Patent No. Re. 30,726, the disclosure of which is incorporated herein. Specification, p. 10, lines 10-17.

Figure 5 shows the breathing pack 91 as an exemplary example of the packs 40. The breathing pack 91 includes gauze sponges 93 which are used to clean fluid, saliva, etc. from around the mouth; a mouth guard 95 to allow for mouth-to-mouth resuscitation while avoiding mouth-to-mouth contact; and disposable medical gloves 97 to reduce contact with body fluids. The bleeding pack includes gauze sponges to control bleeding, a rolled bandage to hold gauze in place, cloth tape to hold the bandages and gauze in place, larger bandages which are used in combination with the bandages on larger wounds and disposable medical gloves to reduce contact with body fluids. The shock pack includes a thermal blanket. The head and spine pack include gauze sponges to control bleeding, a rolled bandage to hold the gauze in place, cloth tape to hold bandages in place, and disposable gloves to reduce contact with body fluids. Specification, p. 11, lines 1-10.

Figure 6 shows the bone pack as a further exemplary example of the packs 40. The bone

pack includes gauze sponges 102 which are used to control bleeding, rolled bandage 104 used to secure the splint and to hold the gauze in place, cloth tape 106 used to hold the gauze and splint in place, triangular bandage 108 used to make a sling to support a broken arm around the neck, wire splint 110 used to splint the injury, ice pack 112 used to reduce swelling and pain, and gloves 114 used to minimize contact with body fluids. Specification, p. 11, lines 11-16.

Figure 7 shows how additional packs can be provided. In addition to the individual packs targeted for different types of first aid situations, as seen in Figure 7, an extras pack 52 can be provided. The extras pack 52 includes a reusable container 54 which allows the user to store additional medical product supplies which are useful in a variety of first aid situations, such as, for example, an ice pack 56, bandages 58, ointment 60, disposable gloves 62, scissors 64, and a disposal bag 66. The user can add to the extras pack 52 user specific medical products such as, for example, asthmatic medicine for asthma sufferers, pain medication and the like. Specification, p. 12, lines 3-9.

Referring to Figure 9, interior sidewalls 200 are connected to the interior of sides 170 to define an interior. The interior comprises a plurality of dividers 390, attached to each sidewall, thus defining a plurality of compartments 371 arranged in an accordion type columnar array. The sidewalls 200 are flexible, and are adapted to allow contents of different thickness can fit into each of the compartments 371. Additionally, the flexible sidewalls 200 provide the accordion style columnar array with its expanding and contracting properties. Each compartment 371 is sequentially oriented in front of the subsequent compartment in the accordion style columnar array.

The accordion style columnar array design permits the compartments 371 to expand to fully occupy the interior. Preferably, each compartment 371 is generally rectangular in shape.

When closed, the first aid kit 300 is a very compact carrying case. However, upon opening the first aid kit 300, surprisingly, what is presented to the responder is a first aid kit designed such that it allows the responder to rapidly and completely visualize all of the packs (not shown) and supplies contained in the compartments 372 simultaneously as they are fanned out in front of them, organized by injury. When the first aid kit 300 is closed, the contents can be carried in a compact, portable, unit. The first aid kit 300 may be adapted to rest on the base 160 both in the open and closed positions. The base 160 can be adapted to limit the outward expansion of the accordion style columnar array. Such expansion provides for the rapid access to the contents of the array. Alternately, the front and rear sides 170, 180 may be directly attached to each other, and to the sidewalls 200. Specification, p. 12, line 22 to p. 13, line 18.

In addition to the icons for breathing, bleeding, and the like, the present invention may also incorporate causative indicating graphics such that the cause of the injury is readily apparent to a user upon viewing the graphic. Causative indicating graphics may be icons, examples of which may include a lightning bolt depicting electrical shock, a sunbeam depicting heatstroke or exhaustion, a gun depicting gunshot wounds, or a knife depicting knife wounds. Therefore, if a person is bleeding from the result of a gunshot wound, the present invention's unique design directs the primary responder to the bleeding pack and all the responder needs to do is look for the gun icon and the instructions will guide the responder on how to use the products to care for the injured patient. Therefore, even if the responder was to respond to the bleeding first, this design is advantageous because it ensures that, regardless of the visible injury, basic life support checks are performed first on every victim. Therefore, instead of management of a condition, i.e. bleeding, the present invention manages the cause of the bleeding, i.e. gunshot. Specification, p. 13, line 19 to p. 14, line 7.

VI. ISSUES ON APPEAL

The issues on appeal are:

1. Whether claims 1-10 are unpatentable under 35 U.S.C. § 103 over U.S. Patent No. 2,324,194 to Campiglia ("Campiglia") in view of First Responder First Aid Kits (#1-#6) ("First Responder") and the National Safety Council "First Aid Guide."

2. Whether claim 7 is unpatentable under 35 U.S.C. § 103 over Campiglia as modified.

3. Whether method claims 8-10 are unpatentable under 35 U.S.C. § 103 over Campiglia as modified.

4. Whether claims 16-18 are unpatentable under 35 U.S.C. § 103 over Campiglia as modified.

VII. GROUPING OF THE CLAIMS

As currently pending, claims 2, 4, 6 and 7 depend directly from independent claim 1. Claim 3 depends from claim 2, and claim 5 depends from claim 4. Appellant does not argue for the patentability of the dependent claims 2, 3 and 6 apart from independent claim 1, from which they all ultimately depend. Appellant does argue for the patentability of claims 4 and 5. Appellant does argue for the patentability of claim 7. Claim 9 depends from independent claim 8. Claim 10 stands alone. Claims 1, 4, 5, 7, 8 and 10 do not all stand or fall together. Appellant presents below reasons why claims 1, 4, 5, 7, 8 and 10 are separately patentable.

VIII. ARGUMENT

A. The Claimed Invention

The present application contains three independent claims, namely, claims 1, 8 and 10.

B. The Rejections

Claims 1-10 were rejected under 35 U.S.C. § 103(a) as unpatentable under 35 U.S.C. § 103 over U.S. Patent No. 2,324,194 to Campiglia ("Campiglia") in view of First Responder First Aid Kits (#1-#6) ("First Responder") and the National Safety Council "First Aid Guide."

C. Claims 1-10 Are Not Obvious Over Campiglia In View Of First Responder And The First Aid Guide

"A prima facie case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art." *In re Rinehart*, 531 F.2d 1048, 1051 (C.C.P.A. 1976). The combination of Campiglia, First Responder, and First Aid Guide, taken as a whole, does not suggest that they be modified in a way sufficient to make the claimed invention, since the combination of references does not teach or suggest a card catalogue/file cabinet-like array having individual cells, with packs, each pack containing supplies for treating a specific first aid situation, the packs arranged in the array in a triage system of order. Furthermore, in order to establish a prima facie case of obviousness, all claim limitations must be taught or suggested. *In re Deminski*, 796 F.2d 436, 442 (Fed. Cir. 1986); *In re McLaughlin*, 443 F.2d 1392, 1395 (CCPA 1971). MPEP 2143.03. The combination of Campiglia, First Responder, and the First Aid Guide does not teach or suggest all of the claim

limitations.

In summary, the combination of the references relied upon in the rejection fails to teach or suggest at least four elements of the present invention: (1) a card catalogue/file cabinet-like array; (2) a specific system of order based on the triage principle of the present invention; (3) packs, each pack containing supplies for treating a specific injury, so arranged in said triage order within the array; and (4) an accordion style collapsible case having expanding and contracting properties containing the card catalogue/file cabinet-like array. Because there are missing elements in the combination of the references relied upon, there is no basis for rejection of the claims under 35 U.S.C. § 103.

The Examiner contends that Campiglia shows a first aid kit carrying case having "a plurality of compartments arranged in card catalogue/file cabinet-like array," and a plurality of packs. The Examiner further contends that the compartments of Campiglia are "folded accordion style." Office Action, August 4, 2003, p. 2. The Examiner further contends that due to Campiglia, "the order of storing the plurality of packs would have been a design choice to one of ordinary skill in the art." Office Action, August 4, 2003, pp. 2-3.

The Examiner contends that First Responder includes a plurality of packs containing instructional cards, and also that the First Aid Guide "clearly establishes that it is old to assess and treat victims according to a triage system." Office Action, August 4, 2003, p. 3.

Appellant respectfully disagrees with the Examiner's assertion.

1. Art Relied On Fails To Teach At Least Two Fundamental Elements Of The Claimed Invention.

Campiglia is a backpack-type first aid kit having three large vertical pockets, but Campiglia is unclear as to what purpose the vertical pockets perform. Campiglia also has other

pockets and slots into which individual items are placed. In an emergency, a responder would be required to sort through the numerous pockets of Campiglia to gather up the supplies needed to render first aid. First Responder is essentially a large first aid kit having drawers, boxes, or bags arranged about its face. A responder must search the flat, x-y type, array to find a drawer, box, or bag corresponding to the first aid need. The eye of a responder must search such an array in a back-and-forth, up-and-down fashion. The First Aid Guide is a small pamphlet containing first aid treatment guidelines.

Campiglia does not have "a plurality of compartments arranged in card catalogue/file cabinet-like array," as alleged by the Examiner. The first aid kit of the present invention, because of its card catalogue/file cabinet-like array, immediately presents a view of all of the contents of the first aid kit without the need to search back-and-forth or up-and-down. That is, in the first aid kit of the present invention, all compartments are viewed in a single line of sight. See specification, p. 3, lines 9-17. Campiglia discloses a "moderately flat rectangular bag 10, having vertically disposed partitions" (col. 2, lines 36-39). The term "vertically disposed partitions" is not suggestive of the concept of a card catalogue/file cabinet-like array, because Campiglia does not teach or suggest that first aid supplies are arranged in such an array. Rather, Campiglia teaches the placement of pockets all about a backpack and not in any type of an organized linear array. The card catalogue/file cabinet-like array structure in claim 1 of the present invention is important, in that it provides a system that is easy to visualize, identify, and comprehend, even for an untrained responder. Specification, p. 3, lines 9-17. More importantly, claim 1 of the present invention includes a specific system of order based on the triage principle. The present invention includes compartments in an order based on the seriousness of the injury, thus providing a structure that emulates the principles of triage. Specification, p. 7, lines 10-11,

and line 18. Campiglia does not teach a specific system of order based on the triage principle.

The prior art First Responder first aid kits and the National Safety Council "First Aid Guide" do not include the triage system of order of the present invention in any manner or fashion, nor the packs so arranged in said triage order, nor the card catalogue/file-cabinet array of the present invention. First, the system presented in the First Responder first aid kits is a flat array of drawers, boxes or bags, completing lacking a card catalogue/file cabinet-like structure. First Responder includes instruction in various types of treatment, but does not teach or suggest the triage system of order of the present invention. Second, the instructions presented in the National Safety Council "First Aid Guide" includes only a primary survey of the patient, but not the fully developed triage system of order of the present invention.

Without something more, the combination of Campiglia, First Responder and the First Aid Guide results in a first aid kit having a flat planar array of compartments, drawers, boxes or bags, that are not in a card catalogue/file cabinet-like array and do not possess packs, each pack containing supplies for treating a specific first aid situation, arranged in a triage system of order within the array.

Additionally, the combination of Campiglia, First Responder, and the First Aid Guide do not include icons or causative indicating graphics. Claim 4 includes a "causative indicating graphic," such as an "icon, depicting the cause of the first aid situation" (Claim 5). Campiglia has no teaching of labels such as icons. First Responder and First Aid Guide have no teaching of a causative indicating graphic. Icons are not even remotely suggested in any of the prior art. Therefore, the obviousness rejection of claims 4 and 5 based on the combination of Campiglia in view of First Responder and the First Aid Guide should be removed.

2. The Art Relied On Fails To Solve The Problem Solved By The Claimed Invention.

The combination of Campiglia, First Responder and First Aid Guide does not solve the problem solved by the present invention, that is, having a card catalogue/file cabinet-like array and a plurality of packs arranged in the array according to a specific system of triage. The combination has no card catalogue/file cabinet-like array and no specific system of order within the array based on the principles of triage. Notwithstanding Campiglia's teaching that items "should be arranged so as to keep possible mistakes to a minimum," (col. 1, lines 33-34) there is no enablement with respect to the claims of the present invention, because combination of art relied on by the Examiner is completely silent on a card catalogue/file cabinet-like array, a triage array and a triage system. *Beckman Instruments, Inc. v. LKB Produkter AB,* 892 F.2d 1547, 1551 (Fed. Cir. 1989) ("In order to render a claimed apparatus or method obvious, the prior art must enable one skilled in the art to make and use the apparatus or method."). The present invention provides an educational experience while accomplishing the victim-aiding objective. Accordingly, the combination of art relied on by the Examiner fails to solve the problem that is solved by the present invention. MPEP 716.04.

3. The Examiner Fails To Make A *Prima Facie* Case Of Obviousness.

Since the combination of Campiglia, First Responder and the First Aid Guide does not teach or suggest all of the claim limitations, the obviousness rejection should be removed. *In re Fine,* 837 F.2d 1071, 1075 (Fed. Cir. 1988). MPEP 2143.03. The clearly missing elements in the combination of the prior art references are: a card catalogue/file cabinet-like array, a specific system of order based on the triage principle of the present invention, and packs containing first aid treatment regimes so arranged in said triage order within the array. Obviousness is tested by

the combined teachings of the references, and the present Brief has outlined what the combination of prior art, as cited by the Examiner, lacks when compared to the present invention. *In re Fine,* 837 F.2d at 1075. If even one element is missing from the combination of references, said combination cannot support a finding of obviousness. *In re Deminski*, 796 F.2d at 442. Each of claims 1-10 require a specific system of order based on the triage principle, a card catalogue/file cabinet-like array and the packs so arranged in said triage order within the array. The combination of all prior art references in the present Office Action does not include all of the elements of the present invention. Therefore, the obviousness rejection should be removed.

4. The Prior Art Relied On Fails To Teach Or Suggest An Accordion Style Collapsible Case And Claim 7 Is Not Obvious For This Additional Reason.

The Examiner contends that the carrying case of Campiglia is also an "accordion style collapsible case." Appellant respectfully disagrees. Campiglia discloses a "moderately flat rectangular bag 10, having vertically disposed partitions." Col. 2, lines 36-39. The term moderately flat does not teach the concept of an accordion type opening. Accordion connotes an expandable opening. The adjective "accordion" is defined as "having folds or bends like the bellows of an accordion," according to The American Heritage Dictionary of the English Language, 4th Ed. (Houghton Mifflin Co., 2000), attached hereto as Appendix B. Campiglia does not have folds or bends like the bellows of an accordion, such that the pockets and partitions of Campiglia possess expanding and contracting properties. The first aid kit of claim 7 "is an accordion style collapsible case." Furthermore, Campigilia does not teach or suggest an "accordion style" array, as in pending claim 7. Even if one were to modify Campiglia to have accordion type folds, it would not yield the present invention, since Campiglia has no teaching of

labels, instruction cards within packs, and a specific system of triage order. Furthermore, the prior art First Responder first aid kits and the National Safety Council "First Aid Guide" do not suggest the accordion style flexible carrying case of the present invention. Therefore, with nothing more, the combination of art relied on by the Examiner is completely silent on a accordion style flexible carrying case and does not teach or suggest that limitation of claim 7.

In conclusion, the obviousness rejection of claim 7 based on the combination of Campiglia in view of First Responder and the First Aid Guide should be removed.[1]

5. Method Claims 8-10 Are Not Obvious Over Campiglia In View Of First Responder And The First Aid Guide.

For the reasons discussed above in connection with claims 1-6, the combination of Campiglia, First Responder, and First Aid Guide references fails to teach a specific system of triage order. For this reason alone, the method claims 8-10 are not obvious in view of the prior art. The clearly missing elements in all of the prior art references are: the specific system of order based on the triage principle of the present invention, a card catalogue/file cabinet-like array and packs containing individual treatment regimens so arranged in said triage order within the array. Additionally, claims 8 and 10 are separately patentable. Claim 8 is directed to a method for arranging the contents of a first aid kit. Claim 10 is directed to a method for administering first aid. Appellant request that the rejection of claims 8-10 be withdrawn.

[1] In the Office Action dated February 24, 2003, the Examiner rejected the claims over Campiglia in view of U.S. Patent 1,090,553 to Mashek ("Mashek"). It is not clear whether Mashek is yet in the case and should be included in the Appeal Brief, since the Examiner is silent as to Mashek in the Office Action dated August 4, 2003, from which the Appeal was taken. Even if Mashek is in the case, it still does not render the pending claims unpatentable. Mashek describes a hand bag having bellows. A hand bag is no more relevant to a first aid kit than any other type of purse or luggage. Mashek does not include a specific system of order based on the triage principle. Therefore, the rejection in view of Mashek was properly removed in the present Office Action dated August 4, 2003. Mashek is clearly nonanalogous art, since said reference was not reasonably pertinent to the particular problem with which the applicant was concerned. MPEP 2141.01 (a).

D. Claims 16-18 Do Not Exist In The Pending Case

The Examiner reiterates a reference to claims 16-18 in the Office Action dated August 4, 2003. There are no claims 16-18 pending in the present application. Appellant requested removal of the same rejection in the Response to Office Action dated May 27, 2003.

E. Examiner's Pattern Of Hindsight

Of concern to the Appellant is that there appears to be a pattern of hindsight. Representative of this pattern is the Examiner's statement in the current Office Action that "it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning," citing *In re McLaughlin*, 443 F.2nd 1392 (CCPA 1971).

In Appellant's Preliminary Amendment dated September 26, 2001, the issue of impermissible hindsight is addressed at length. The examiner has taken the incredible position that there are two types of hindsight in patent cases, one permissible, the other impermissible. A careful reading of *McLaughlin* shows that this is just not true. *In re McLaughlin* is a seminal case providing guidance on combining references and does not establish "permissible hindsight." The facts of *McLaughlin* relate to a patent application for an improved railroad boxcar loading construction. In rejecting the claims as obvious, the examiner in *McLaughlin* cited references also relating to boxcars. The applicant, McLaughlin, argued that the references were improperly combined. The court held that the test for combining references is not what the individual references themselves suggest but rather what the combination of the disclosures taken as a whole would suggest to one of ordinary skill in the art. In other words, a 103(a) rejection may be properly based on a combination of references and what is known in the art. The phrase "hindsight reasoning" appears in the case, but the case does not give license to examiners to use

hindsight as a basis for rendering a claim obvious. It is key in the analysis of *McLaughlin* that the knowledge of what was known in the art was derived from the prior art references, the so called "hindsight reasoning." In fact, *In re McLaughlin* specifically precludes reliance on an applicant's disclosure, as do all cases since then, in establishing a *prima facie* case of obviousness.

One cannot use hindsight reconstruction to pick and choose among isolated, unrelated, disclosures in the prior art to depreciate the claimed invention. See *W.L. Gore & Associates v. Garlock, Inc.* 721 F. 2d 1540, 1553, 220 USPQ (BNA) 303, 313 (Fed. Cir. 1983); *In re Dembiczak*, 175 F.3d 994, 999, 50 USPQ 2d (BNA) 1614 (Fed. Cir. 1999). Obviousness is tested by "what the combined teachings of the references would have suggested to those of ordinary skill in the art." See *In re Keller,* 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). There is a requirement for a showing of the teaching or motivation to combine prior art references. See *C.R. Bard, Inc. v. M3 Sys., Inc.,* 157 F.3d 1340, 1352, 48 USPQ2d (BNA) 1225, 1232 (Fed. Cir. 1998). The inappropriateness of hindsight as a test of obviousness was "aptly described by the poet Milton over three centuries ago:

> The invention all admired, and each how he
> To be the inventor missed; so easy it seemed,
> Once found, which yet unfound most would have thought,
> Impossible!
> PARADISE LOST, Part VI, L. 478-501."

Gillette Co. v. S.C. Johnson & Son, Inc., 919 F.2d 720, 726 (Fed. Cir. 1990). Nearly 30 years after *McLaughlin*, the rule of law still stands. There is no "permissible hindsight."

Thus, if several elements of the present invention are not suggested, or even hinted at, in the prior art relied on by the Examiner, how might these elements arise in the Examiner's *prima*

facie case of obviousness? Without something more, the missing elements can only arise because the Examiner has used improper hindsight.

F. Examiner's Assertion Of Arguing Against References Individually

The Examiner states in the present Office Action that: "In response to applicant's arguments against the references individually, one cannot show non-obviousness by attacking references individually where the rejections are based on combinations of references." Appellant states emphatically that the present argument is based on the combination of cited references and these combinations taken together lack one or more elements of the pending claims in the present case.

IX. CONCLUSION

Each of the Campiglia, First Responder, and First Aid Guide references fails to teach a specific system of triage order. For this reason alone, the pending claims are not obvious in view of the prior art. The clearly missing elements in the combination of the prior art references relied on are: (1) a card catalogue/file cabinet-like array; (2) the specific system of order based on the triage principle of the present invention; (3) the packs, each pack containing supplies for treating a specific injury, so arranged in said triage order within the array; and (4) an accordion style collapsible case having expanding and contracting properties within which is contained the card

catalogue/file cabinet-like array having packs arranged in the triage order. Appellant requests that the rejection of claims 1-10 be withdrawn.

Respectfully submitted,

Date: March 26, 2004

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In re Appln. of Hammond
Application No. 09/963,734
Appellant's Appeal Brief

CERTIFICATE OF MAILING

Date: March 26, 2004

I hereby certify that the following APPELANT'S APPEAL BRIEF along with its enclosures is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 C.F.R. § 1.10 on the date indicated above and is addressed to: Mail Stop Appeal Brief – Patents, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Carlos Cormaciano
Typed or Printed Name

Signature

APPENDIX A

1. A first aid kit comprising:

a carrying case defining an interior which includes means for providing quick access to the interior, the carrying case having a plurality of compartments in a card catalogue/file cabinet-like array;

a plurality of packs, carried in the compartments, each pack being designated by a descriptive label, and each of the packs containing a plurality of first aid products for the management of a particular first aid situation and arranged according to a system wherein the packs are aligned in the case starting from a position where an emergency responder is located relative to the case in the order of: a pack containing products for the management of a breathing first aid situation, a pack containing products for the management of a bleeding first aid situation, a pack containing products for the management of a shock first aid situation, a pack for the management of a head and spine first aid situation, a pack for the management of a bone first aid situation, a pack for the management of a burn first aid situation, and then a pack for the management of a bites and stings first aid situation; and

an instructional card within each pack, the instructional card having a corresponding descriptive label with the pack and bearing instructions for use of the contents within the pack for the first aid situation described on the label and instructing the user to check a set of vital indicators of a person requiring first aid.

2. The first aid kit of claim 1 further providing a guidebook that includes instructions regarding the products contained in each pack and wherein the instructions are set forth in graphical depictions to guide the use in the use of the products of each pack.

3. The first aid kit of claim 2 wherein the instructional cards contained in the packs are capable of being combined to form a duplicate guide book such that a secondary responder can read the matching instructions on the instructional card to a primary responder who can follow the guidebook graphical depictions simultaneously.

4. The first aid kit of claim 1 wherein each pack includes a causative indicating graphic.

5. The first aid kit of claim 4 wherein the causative indicating graphic is as icon depicting the cause of the first aid situation.

6. The first aid kit of claim 1 wherein each pack is designated a size or shape which is different than the size or shape designated to the remaining packs.

7. The first aid kit of claim 1 further wherein the carrying case is an accordion style collapsible case.

8. A method for arranging the contents of a first aid kit comprising the steps of:

assembling a collection of packs containing products for the management of particular first aid situations;

ranking the seriousness of the first aid situation to be managed using each pack in an order beginning with the most serious and ending with the least serious first aid situation;

placing the pack for the management of the most serious first aid situation in a front compartment of the first aid kit; and

arranging the remaining packs in a card catalogue/file cabinet-like array and in an order of descending seriousness in the first aid kit behind the pack for the management of the most serious first aid situation.

9. The method of claim 8 further comprising the steps of:

adding a new pack for the management of a new first aid situation by:

determining a seriousness ranking of the new first aid situation;

comparing the seriousness ranking of the new first aid situation to the seriousness ranking of the packs arranged in the first aid kit;

locating the pack for the management of the first aid situation that is ranked as the next less serious situation as compared to the new situation;

placing the new pack in front of the pack for the management of the first aid situation ranked as the next serious situation as compared to the new situation.

10. A method for the administering first aid comprising the steps of:

identifying a victim requiring first aid,

obtaining a first aid kit, the first aid kit having:

a carrying case defining an interior which includes means for providing quick access to the interior, the carrying case having a plurality of compartments in a card catalogue/file cabinet-like array;

a plurality of packs, carried in the compartments, each pack being designated by a descriptive label, and each of the packs containing a plurality of first aid products for the management of a particular first aid situation and arranged according to a system wherein the packs are aligned starting from an emergency responder in the order of: a pack containing products for the management of a breathing first aid situation, a pack containing products for the management of a bleeding first aid situation, a pack containing products for the management of a shock first aid situation, a pack for the management of a head and spine first aid situation, a pack for the management of a bone first aid situation, a pack for the management

of a burn first aid situation, and then a pack for the management of a bites and stings first aid situation; and

an instructional card within each pack, the instructional card having a corresponding descriptive label with the pack and bearing instructions for use of the contents within the pack for the first aid situation described on the label and instructing the user to check a set of vital indicators of a person requiring first aid;

identifying a pack of products within the first aid kit by matching the first aid situation with the pack of products bearing an icon depicting the first aid situation;

managing the first aid situation according to the instructions printed on a card contained within the pack of products for the management of that particular first aid situation; and

replacing the pack of products for that particular first aid situation with an identical pack of products.

3 entries found for *accordion*.

ac·cor·di·on Pronunciation Key (ə-kôr'dē-ən)
n.

A portable wind instrument with a small keyboard and free metal reeds that sound when air is forced past them by pleated bellows operated by the player.

adj.

Having folds or bends like the bellows of an accordion: *accordion pleats; accordion blinds.*

[German Akkordion, from Akkord, *chord*, from French accord, *harmony*, from Old French acorder, *to accord*, from Medieval Latin accordāre, *to bring into agreement*. See **accord**.]

ac·cor'di·on·ist *n.*

accordion

\Ac*cor"di*on\, n. [See Accord.] (Mus.) A small, portable, keyed wind instrument, whose tones are generated by play of the wind upon free metallic

reeds.

Source: *Webster's Revised Unabridged Dictionary, © 1996, 1998 MICRA, Inc.*

accordion

adj : arranged in parallel folds; "plicate leaves" [syn: plicate] n : is portable [syn: piano accordion, squeeze box]

Source: *WordNet ® 1.6, © 1997 Princeton University*

Perform a new search, or try your search for "accordion" at:

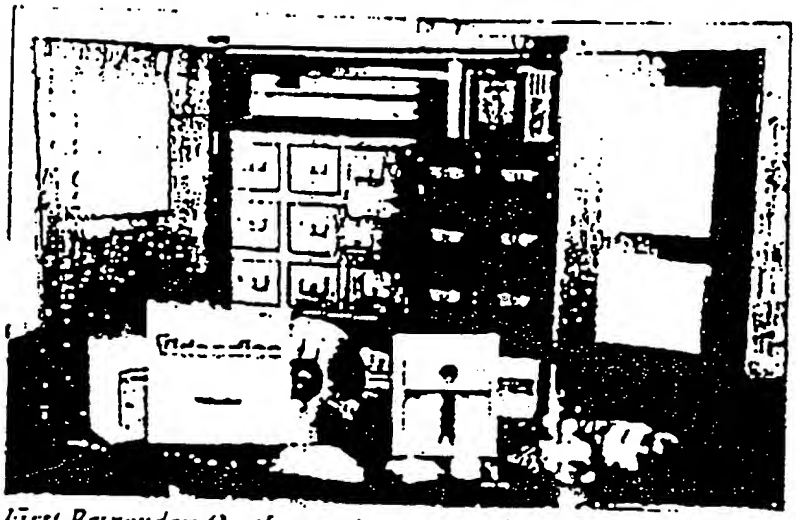
- Amazon.com - **Shop for books, music and more**
- AskJeeves.com - **Get the top 10 most popular sites**
- eLibrary - **Search thousands of newspapers and magazines**
- Google - **Search the Web for relevant results**
- Google Groups - **Search Usenet messages back to 1981**
- Merriam-Webster - **Search for definitions**
- Overture - **Search the Web**
- Roget's Thesaurus - **Search for synonyms and antonyms**

(4)

First Aid by Video

A worker on an offshore oil rig is seriously injured and goes into shock. Will his co-workers know what to do to save the man's life? Is the right equipment available to give emergency treatment until a helicopter can arrive to take the worker to an onshore hospital? For this and similar emergencies, a new company in Washington, D.C., is working on a product that makes use of new technology to help untrained people administer emergency treatment.

The First Responder Program is essentially a large first-aid kit with a video player and monitor that can provide audio-visual instructions from a prerecorded disc. The disc contains step-by-step instructions for the treatment of various injuries and illnesses. By referring to a list of instructions, the user can ask the disc player to show the procedure for treating burns. The explanation will direct the user to the "burn drawer," one of several numbered drawers in the cabinet. The drawer will contain the necessary bandages, salves and ointments needed to treat burns.



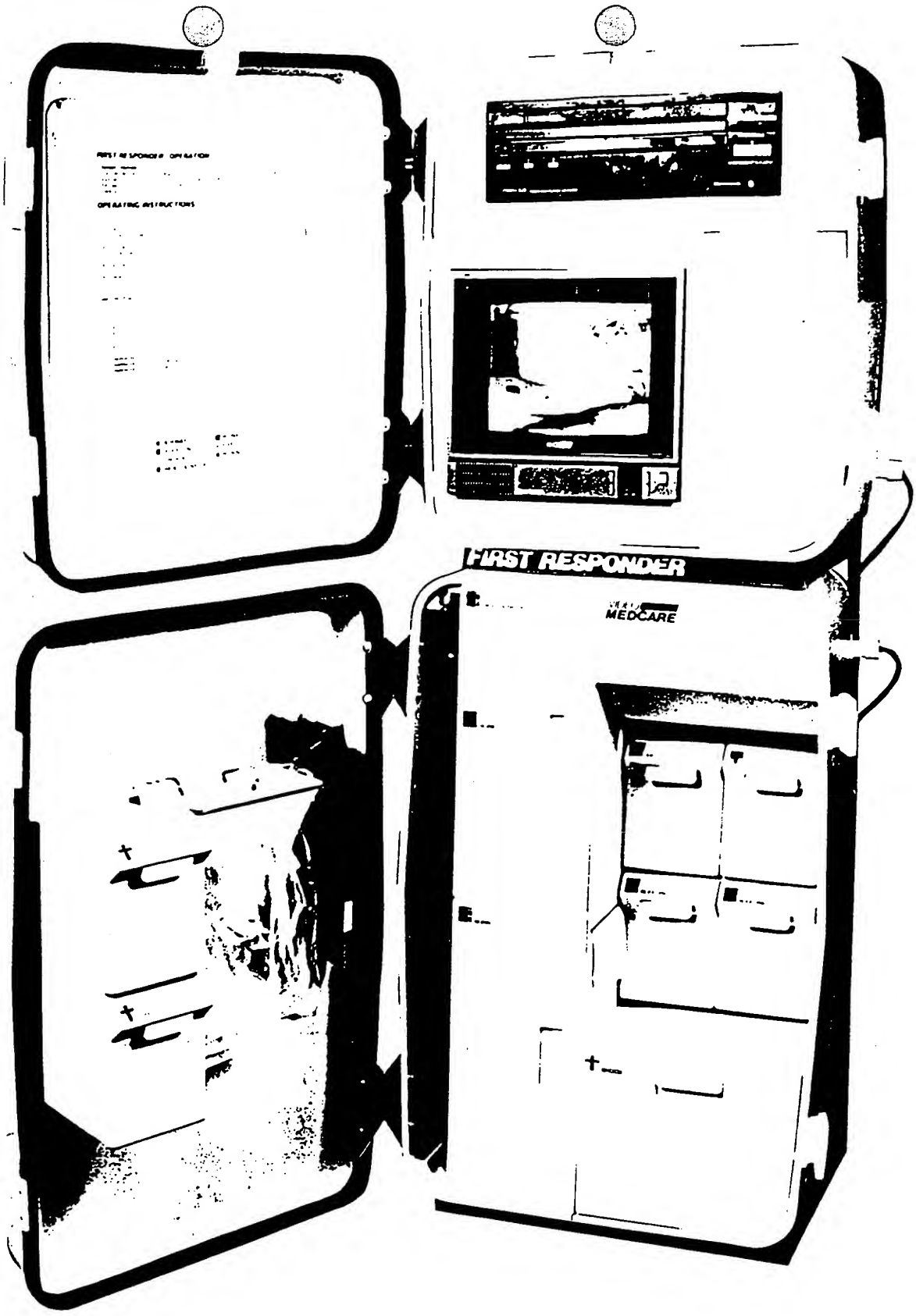
First Responder: On-the-spot instruction for medical treatment

The standard First Responder kit provides instruction on 11 types of treatment, and other subjects can be added. The audio portion of the instruction has two sound tracks. This makes possible instruction in two languages or separate programs for preventive instruction and actual emergency treatment. The unit is housed in a stainless-steel cabinet that weighs about 100 pounds when fully outfitted. It will run off electric or battery power. The First Responder Program is being produced by International Training & Education Systems Technology, Inc. The price of the standard kit is about $8,900.

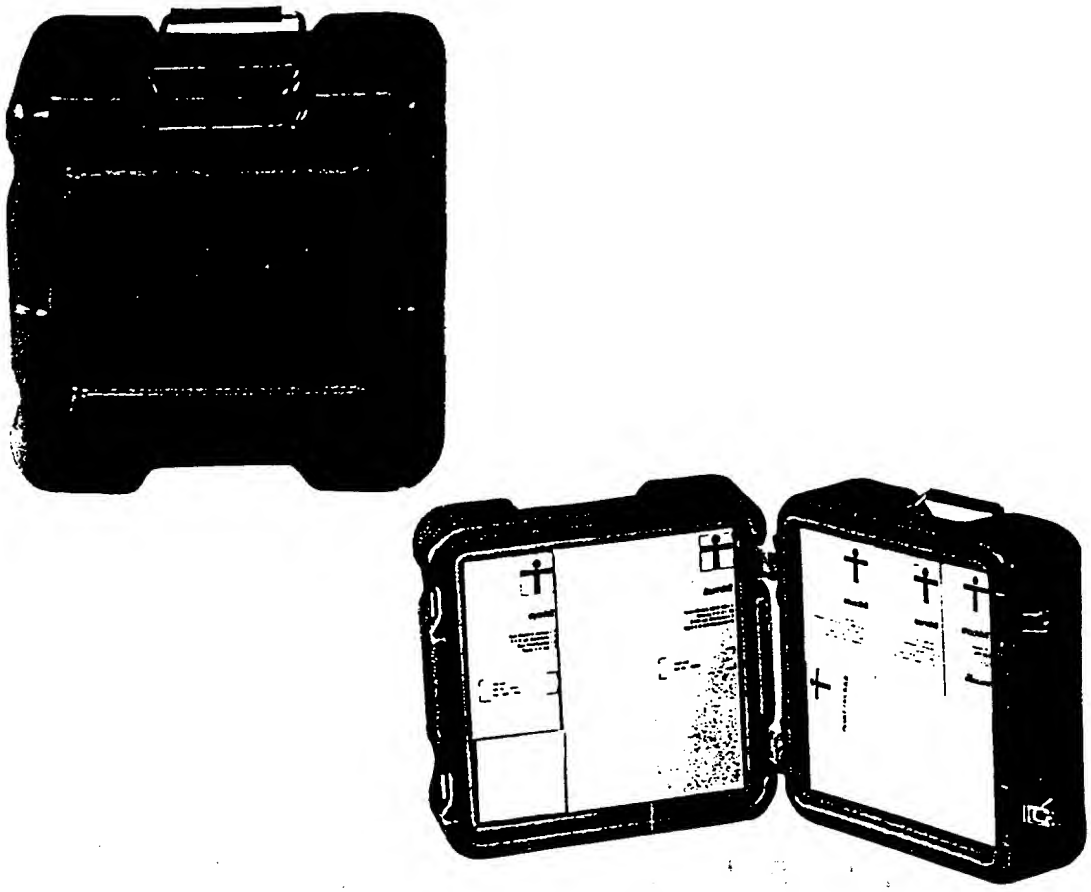
WILLIAM BURGER with BRUCE SHENITZ

NEWSWEEK/JULY 23, 1984

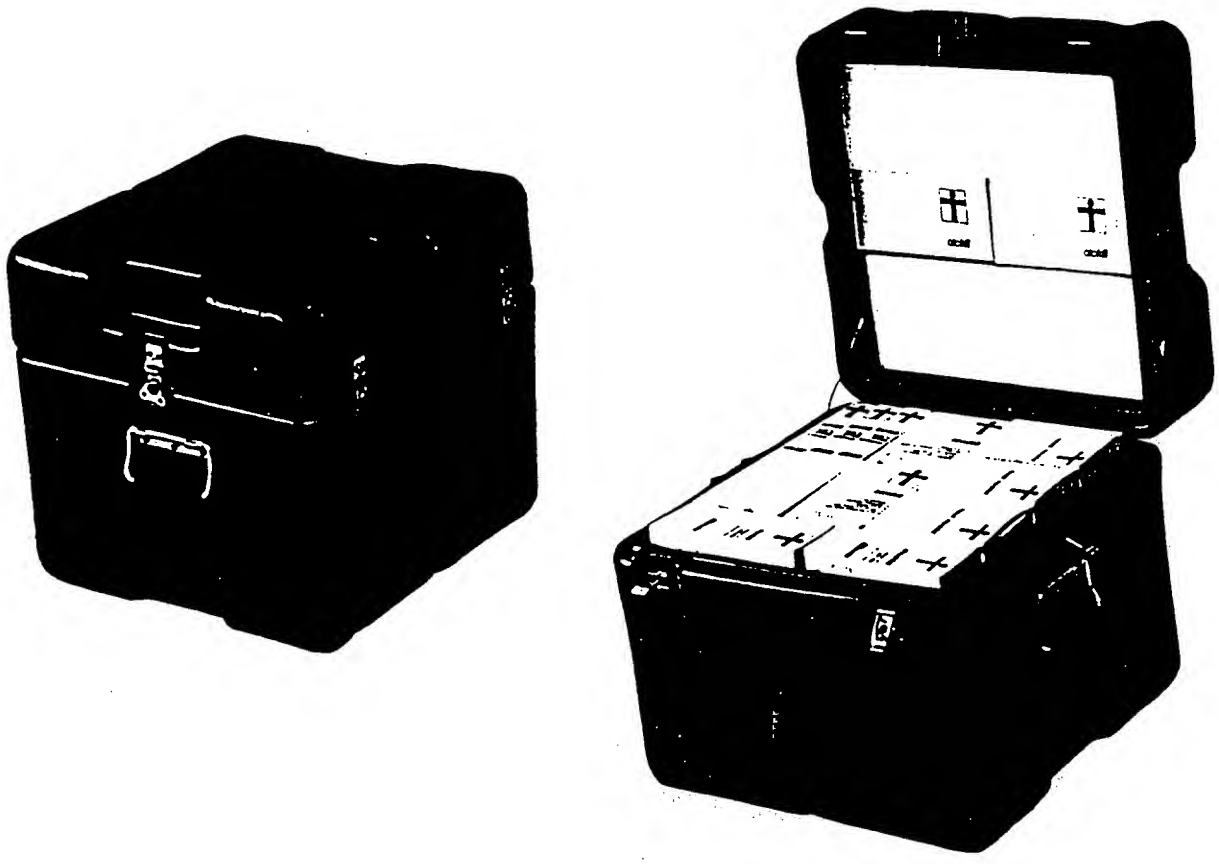
PRIOR ART FIRST AID KIT #1



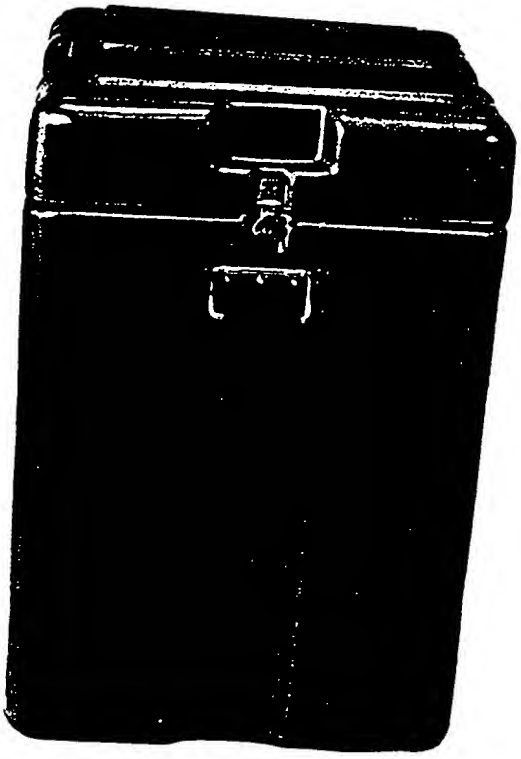
PRIOR ART FIRST AID KIT #2



PRIOR ART FIRST AID KIT #3



PRIOR ART FIRST AID KIT #4



PRIOR ART FIRST AID KIT #5

PRIOR ART FIRST AID KIT #6

National Safety Council

EMERGENCY TELEPHONE NUMBERS

Community Emergency Telephone: _____

Ambulance (EMS): _____

Doctor's Name and Telephone: _____

Doctor's Name and Telephone: _____

Poison Control Center: _____

Police Department: _____

Fire Department: _____

Available from:

National Safety Council
First Aid Institute
1121 Spring Lake Drive
Itasca, IL 60143-3201
708-285-1121

Jones and Bartlett Publishers
One Exeter Plaza
Boston, MA 02116
617-859-3900

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10 9 8 7 6 5 4 3 2 1

The first aid and CPR procedures in this book are based on the most current recommendations of responsible medical sources. The National Safety Council and the publisher, however, make no guaranty as to, and assume no responsibility for, the correctness, sufficiency, or completeness of such information or recommendations. Other or additional safety measures may be required under particular circumstances.

Jones and Bartlett Publishers
One Exeter Plaza
Boston, MA 02116

INTRODUCTION

First aid is the immediate care given to the injured or suddenly ill person. First aid does not take the place of proper medical treatment. It consists only of furnishing temporary assistance until competent medical care, *if needed*, is obtained, or until the chance for recovery without medical care is assured. *Most injuries and illnesses require only first aid care.*

VICTIM ASSESSMENT

After sizing up an emergency situation initially and deciding if it is safe to provide first aid for the victim there, the first aider can then find out what is wrong and how serious it is by following a systematic approach known as *victim assessment.*

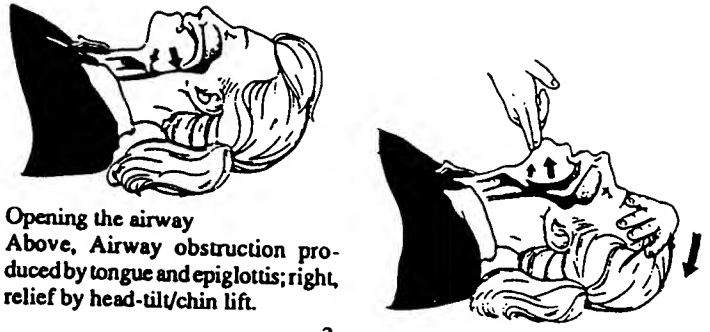
Victim assessment of an injured or an ill person consists of :

- Primary survey
- Secondary survey

Primary Survey

The primary survey covers these areas in this order:

A–Airway open?
B–Breathing?
C–Circulation at carotid pulse?
H–Hemorrhage (severe bleeding)?



Opening the airway
Above, Airway obstruction produced by tongue and epiglottis; right, relief by head-tilt/chin lift.

NEW PIG CORPORATION

FIRST AID KIT

* Conforms to OSHA Standards *

One Pork Avenue • Tipton, PA 16684-0304
(814) 684-0101 • 1-800-HOT-HOGS (468-4647)

531 F.2d 1048.
189 U.S.P.Q. 143
(Cite as: 531 F.2d 1048)

C
United States Court of Customs and Patent Appeals.

Application of Verne R. RINEHART.

Patent Appeal No. 75--608.

March 11, 1976.

Applicant appealed from a decision of the Patent and Trademark Office Board of Appeals, Serial No. 130,743, which affirmed an examiner's rejection of claims for a process for preparing resin on a commercial scale. The Court of Customs and Patent Appeals, Markey, C.J., held that the claims of the patent application for a process for preparing resin on a commercial scale were not obvious.

Reversed.

West Headnotes

[1] Patents ⇐32
291k32 Most Cited Cases

[1] Patents ⇐36(1)
291k36(1) Most Cited Cases
(Formerly 291k18)

Prima facie case of obviousness is established when teaching from prior art itself would appear to have suggested the claimed subject matter to person of ordinary skill in art, and once such case is established, it is incumbent upon applicant to go forward with objective evidence of unobviousness. 35 U.S.C.A. § 103.

[2] Patents ⇐16.13
291k16.13 Most Cited Cases
(Formerly 291k18)

Prima facie obviousness is legal conclusion, not a fact, and facts established by rebuttal evidence presented by patent applicant must be evaluated along with facts on which earlier conclusion of obviousness was reached, not against conclusion itself. 35 U.S.C.A. § 103.

[3] Patents ⇐16.14
291k16.14 Most Cited Cases
(Formerly 291k18)

Claims of patent application for process for preparing resin on commercial scale were not obvious. 35 U.S.C.A. § 103.

[4] Patents ⇐16(1)
291k16(1) Most Cited Cases
(Formerly 291k18)

Inherency and obviousness are entirely different concepts. 35 U.S.C.A. § 103.

Patents ⇐328(2)
291k328(2) Most Cited Cases

3,050,533, 3,427,287. Cited as prior art.
***1048** Paul H. Heller, New York City, attorney of record, for appellant. Hugh A. Chapin, Kenyon & Kenyon Reilly Carr & Chapin, ***1049** New York City, Ford W. Brunner, James M. Wallace, Jr., Akron, Ohio, Malvin R. Mandelbaum, New York City, of counsel.

Joseph F. Nakamura, Washington, D.C., for the Commissioner of Patents. Jack E. Armore, Washington, D.C., of counsel.

Before MARKEY, Chief Judge, and RICH, BALDWIN, LANE and MILLER, Judges.

MARKEY, Chief Judge.

This is an appeal from the decision of the Patent and Trademark Office Board of Appeals (board) affirming the examiner's final rejection of claims 1 through 9, which are all the claims in appellant's (Rinehart's) application serial No. 130,743, filed April 2, 1971[FN1] entitled 'Process for Preparing

Resin.' We reverse.

FN1. The present application is a continuation-in-part of application serial No. 667,854 (parent), filed September 14, 1967, which in turn is a continuation-in-part of application serial No. 254,754, filed January 29, 1963, both of which are now abandoned. Prior to the present appeal, the rejection of parent application was appealed to the U.S. District Court for the District of Columbia. Goodyear Tire & Rubber Co. v. Schuyler, Com'r., Civil No. 666--71 (D.D.C., Feb. 25, 1975). Upon stipulation, that action was dismissed with prejudice, after the express abandonment of the parent application, but without prejudice to the allowance of materially different claims, or of the same or similar claims on a record supporting them, such as the record now before us.

The Invention

Commercial scale quantities of polymeric ethylene terephthalate (PET) are produced in either a batch or continuous process by heating a dicarboxylic acid with glycol in the presence of a preformed low molecular weight polyester solvent[FN2] under superatmospheric pressure and utilizing a low ratio of glycol to acid. The product may be conventionally condensation polymerized in the presence of a catalyst.

FN2. The solvent may include stabilizer, catalyst, and ether inhibitors.

The claims have been treated together by Rinehart and the solicitor and will be so treated here. Claims 1 and 4 are illustrative:

1. The method for the commercial scale production of polyesters which comprises adding commercial scale quantities of ethylene glycol and a free aromatic dicarboxylic acid in the molar ratio of glycol to acid of from 1.7:1 to 1.05:1 to a solvent consisting of a preformed low molecular weight linear condensation polyester of a glycol and a dicarboxylic acid, said polyester having an average degree of polymerization of from 1.4 to 10, heating and reacting the mixture at a temperature above the melting temperature of the low molecular weight linear polyester at a pressure of from about 20 to about 1000 pounds per square inch gauge pressure until a linear condensation polyester resin of said glycol and acid having an average degree of polymerization of from 1.4 to 10 is formed.

4. The method for the commercial scale production of polyesters which comprises continuously adding commercial scale quantities of ethylene glycol and terephthalic acid in the ratio of from 1.7:1 to 1.05:1 of ethylene glycol to terephthalic acid to a solvent consisting of low molecular weight ethylene glycol-terephthalate polyester having an average degree of polymerization of from 1.4 to 10 while heating and reacting the mixture at a temperature above the melting temperature of the low molecular weight ethylene glycol- terephthalate polyester at a pressure range of from about 20 to about 1000 pounds per square inch gauge pressure, continuously venting the water vapor formed in the reaction at such a rate that the pressure in the system is maintained constant within said pressure range and continuously withdrawing an amount of low molecular weight ethylene glycol-terephthalate polyester about equal to the amount of ethylene glycol and terephthalic acid added.

Board

The board affirmed the rejection of claims 1 through 9 under 35 U.S.C. s 103 as ***1050** obvious on Pengilly[FN3] and Munro et al. (Munro)[FN4] 'considered together.'[FN5] Both Pengilly and Munro form PET by heating, in either a batch or continuous process, a dicarboxylic acid with glycol, utilizing low ratios of glycol to acid (for example, 1.05:1.0 to 1.3:1.0 for Pengilly), and then polymerizing the low molecular weight ester formed therefrom in the presence of a catalyst. The processes differ in that the initial step of the Pengilly process is conducted at atmospheric pressure utilizing a preformed polyester solvent, whereas Munro operates at a higher pressure absent the solvent.

FN3. U.S. Patent No. 3,427,287 issued February 11, 1969.

FN4. U.S. Patent No. 3,050,533 issued August 21, 1962.

FN5. The board also affirmed a double patenting rejection of those claims under 35 U.S.C. s 101 based upon the copending parent application. Express abandonment of the parent application, subsequent to the board's decision, moots the issue.

The appealed claims differ substantively from those of the parent application only in reciting 'commercial scale production' utilizing 'commercial scale quantities.' Because the claims in the parent application had been rejected under 35 U.S.C. s 103 on the same prior art and logic, the board merely adopted the previous board opinion, which held that the references established a case of 'prima facie obviousness.' The earlier board, agreeing with the examiner that Pengilly and Munro considered together rendered the claimed subject matter prima facie obvious because each suggested consonant advantages, stated:

> For example, Pengilly suggests that by using a polyester solvent shorter heating times and less glycol is required, and Munro et al suggests that by using higher pressures a shorter reaction time is required. One of ordinary skill in the polymer art would therefore expect that if higher pressures were used in other art processes (i.e., Pengilly) shorter reaction times would be necessary.[FN6]

FN6. The earlier board also speculated that Munro's continuous process may 'actually involve the use of preformed ester as the reaction solvent if the reaction takes place throughout the reactor and if, during the initial part of the process, the product is not withdrawn as rapidly as it is formed.'

The board considered the rebuttal evidence, a single affidavit by the inventor, Rinehart, to be insufficient. The primary apparent purpose of that evidence was to show the commercial inoperability of Pengilly and Munro, taken individually, compared to Rinehart's commercially used method. Rinehart's extensive affidavit included, however, substantial analysis of the entire field of polyester production and of what, in his view, Pengilly and Munro would actually teach those skilled in the art. The experimental pilot plant evidence is summarized below for a low charge molar ratio of glycol to acid (1.1:1.0):

531 F.2d 1048.
189 U.S.P.Q. 143
(Cite as: 531 F.2d 1048)

	Esterification Reaction			
	1 Munro	2 Rinehart	3 Pengilly	4 Munro
Pressure (psig)	40	40	0 (Atmos.)	40
Temperature (<<degrees>> C.)	250-261	248-252	*	260-262
Reactant Batch Size (pounds)	122.1	122.1	122.1	268.6
(Solvent)/Batch	No (Solvent)	1.2/1.0	1.2/1.0	No (Solvent)
Average Time (Min.)	330	150	657	483

FN* The temperature was increased at a rate of 3 <<degrees>> C/30 minutes from about 220 <<degrees>> C to 245 <<degrees>> C.

	Properties of High Polymer			
% Ether	2.99	1.68	1.51	3.08
Melting Point	244.9	252.2	252.8	244.1
Gardner Rd	27.1	24.9	27.0	25.4
Gardner b +	14.0	8.3	13.6	17.8

***1051** Rinehart alleged commercial success, based on the 1970 conversion by Goodyear Tire and Rubber Company (the assignee of Rinehart) from the ester interchange method, used since 1959, to Rinehart's direct esterification method.

The affidavit states:

> Both the Pengilly, and Munro and Maclean, procedures based on my experience and as evidenced from their patents are operable on a small scale. However, neither of their patents points to any recognition of the problems which arise from scaling up to a commercial process. It is implicit in their patents that the described procedures are satisfactory for commercial operation; but I have found that their techniques are not satisfactory on a commercial scale at about equimolar proportions. The advantages claimed by Munro and Maclean for their process are a short reaction time, improved color, higher softening point and a minimum ether content. However, I have found that as the Munro and Maclean process is scaled up beyond laboratory equipment the reaction becomes inconveniently long, the color deteriorates, the melting point is lowered and the ether content increases. The process of Pengilly was similarly operable on a small scale and not suitable for scale-up to a commercial process.

The board concluded that the affidavit evidence did not rebut its finding of prima facie obviousness because, in its view, the prior art clearly suggested higher pressure, together with an expected attendant

advantage of increased reaction rate, as a solution to the commercial difficulties allegedly encountered by Rinehart. Moreover, the recitation to which the affidavit is directed, 'commercial scale production' utilizing 'commercial scale quantities,' was viewed as 'inherently' obvious. The board did not consider the utilization of the claimed method by Rinehart's assignee to be evidence of commercial success sufficient to establish unobviousness.

Issue

Whether, in the light of all the evidence, the claimed method would have been obvious at the time the invention was made.

OPINION

Pengilly and Munro individually teach methods for the production of PET which differ, in different respects, from that claimed by Rinehart. A determination under 35 U.S.C. s 103, however, requires consideration of the entirety of the disclosure made by the two references to those skilled in the art.

[1] A prima facie case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art. Once such a case is established, it is incumbent upon appellant to go forward with objective evidence of unobviousness. In re Fielder, 471 F.2d 640 (CCPA 1973).

Prima Facie Obviousness

On the appeal involving Rinehart's parent application, the board was limited to the sterile evaluation of the claims and the prior art necessitated by availability of only the application and the cited references. Based on that evaluation, that board stated:

> We agree with the examiner that, in view of Munro et al., it would be obvious to operate the process of Pengilly at superatmospheric pressure. Looking at it from another point of view, it would be obvious in view of Pengilly to employ preformed ester as a solvent in the reaction of Munro et al.

***1052** On the appeal of the present application, the board stated:

> With regard to the rejection under Section 103, we find ourselves in substantial agreement with the position of the examiner as set forth in his answer. The claims on appeal are in essence the same as those in Serial No. 667,854, which is now before the District Court for the District of Columbia (Civil Action 666--71), the basic difference being the involved claims recite and are limited to 'commercial scale production' utilizing 'commercial scale quantities.' The claimed invention is otherwise identical insofar as the material limitations defined are concerned. The claims in parent case Serial No. 667,854 were rejected under Section 103 over the same art applied herein and essentially for the same reasons. Insofar as the question of whether or not the combination of the teachings of Pengilly and Munro et al would render the claimed process prima facie obvious, the same arguments were presented by appellant and the examiner in both the prior case and herin. Based on these arguments, the Board of Appeals agreed with the position of the examiner and affirmed the rejection. Appellant has set forth no good and sufficient reason why we should reconsider the prior Board decision or reach any other conclusion based on the arguments alone; we therefore adhere to that position and adopt it as our own.
>
> The only remaining question for this Board to consider with regard to the Section 103 rejection is whether or not the affidavit filed under the provisions of Rule 132 is sufficient to rebut the prima facie case: in our opinion, it is not.

The board erred in adopting the earlier opinion. The basis for evaluation and for decision had changed. The present board had before it not only the application and the prior art but all of the unrebutted facts established in Rinehart's affidavit. At that stage no question of prima facie obviousness remains. The appealed claims must be reconsidered in the light of all the evidence, and the resultant finding, that the claimed invention would or would not have been obvious, is to be made in such light.

[2] The concept of rebuttable prima facie obviousness is well established. Cf. In re Freeman, 474 F.2d 1318 (CCPA 1973); In re Klosak, 455 F.2d 1077, 59 CCPA 862 (1972); In re D'Ancicco, 439 F.2d 1244, 58 CCPA 1057 (1971). It is not,

however, a segmented concept. When prima facie obviousness is established and evidence is submitted in rebuttal, the decision-maker must start over. Though the burden of going forward to rebut the prima facie case remains with the applicant, the question of whether that burden has been successfully carried requires that the entire path to decision be retraced. An earlier decision should not, as it was here, be considered as set in concrete, and applicant's rebuttal evidence then be evaluated only on its knockdown ability. Analytical fixation on an earlier decision can tend to provide that decision with an undeservedly broadened umbrella effect. Prima facie obviousness is a legal conclusion, not a fact. Facts estanblished by rebuttal evidence must be evaluated along with the facts on which the earlier conclusion was reached, not against the conclusion itself. Though the tribunal must begin anew, a final finding of obviousness may of course be reached, but such finding will rest upon evaluation of all facts in evidence, uninfluenced by any earlier conclusion reached by an earlier board upon a different record.

The board's analytical process appears to have resulted, at least in part, from Rinehart's erroneous argument that the mere inclusion of 'commercial scale production' and 'commercial scale quantities' served to patently distinguish the appealed claims over those in the parent application. In response, the board engaged in comparison of the two sets of claims and emphasized their essential identity. Whether engendered by Rinehart's arguments, the concentration on the 'inherent obviousness' of scaling up led Rinehart and the solicitor into error.

Rinehart erred in contending that the mere insertion into the claims of 'commercial ***1053** scale,' without more, would constitute a distinguishing limitation. Though inclusion of the phrase in the claims does no harm, it is clear that mere scaling up of a prior art process capable of being scaled up, if such were the case, would not establish patentability in a claim to an old process so scaled. Moreover, absent evidence to the contrary, nothing in Pengilly or Munro indicates that their processes are not effective on a commercial scale, and Rinehart concedes that commercial operation is implicit in the reference patents.

Rinehart argues here that merely because the appealed claims include a 'crucial limitation' to commercial quantities, they were 'different claims' and that the board could not therefore have applied the earlier decision to them. We cannot agree. Absent the evidence in Rinehart's affidavit, use of commercial quantities in the processes of the references would have been obvious. If all Rinehart had done was to add the broad 'commercial scale' phrases, the board's treatment would have been correct. It could not have found that the mere use of commercial quantities established unobviousness of the invention as a whole. But Rinehart did more. He submitted substantial evidence touching the basic question of whether his claimed process would have been obvious.

The board erred, as above indicated, in comparing the appealed claims to the earlier claims as though it had been established that the latter did in fact set forth an old or obvious process. In such comparison, the board proceeded as though the earlier claims were a kind of prior art to Rinehart and as though the earlier decision on those claims was a kind of res judicata. The differences between the two sets of claims were simply not at issue in this case. The sole question is whether Rinehart's claimed process would have been obvious in view of all the evidence.

The Evidence

The opinion of the board on the appeal involving the parent application included the following:

> Appellant alleges the existence of numerous difficulties with the processes of Pengilly and Munro et al. which, he claims, are overcome by combining the features of both processes. However, appellant's allegations are not supported by any evidence.

[3] The evidence now of record, in our view, does support Rinehart's allegations. The assertion that the processes of Pengilly and Munro cannot satisfactorily be scaled up is neither challenged nor rebutted. Though mere reference to 'commercial scale quantities' in the claims and affidavit does not itself establish patentability, it does establish the environment of the invention. It outlines the problem solved and gives dimension to Rinehart's contribution. The claims must therefore be considered, and the references must be evaluated, in the light of an effort to achieve commercially effective production. As will appear hereinbelow,

the affidavit evidence also spotlights portions of the prior art disclosures indicating unobviousness of the claimed process.

It is true that Pengilly and Munro both disclose processes for polyester production by direct esterification. Rinehart's affidavit admits that he began with an effort to employ the process of Pengilly on a commercial scale and that the only essential difference between the claimed process and that of Pengilly is the employment of superatmospheric pressure.

The board adopted the earlier opinion, which considered the claimed process as either that of Pengilly with the substitution of the superatmospheric pressure disclosed by Munro or that of Munro with the use of a preformed polyester as disclosed by Pengilly. But that view of the claimed process does not end the inquiry. The question remains whether it would have been obvious, in scaling up Pengilly's process, to have employed Munro's higher pressures or in scaling up that of Munro to have employed Pengilly's preformed polyester.

[4] The tribunals below did not meet the requirement of establishing some predictability ***1054** of success in any attempt to combine elements of the refernce processes in a commercial scale operation. As in In re Naylor, 369 F.2d 765, 54 CCPA 902 (1966), we find nothing in the record which would lead one of ordinary skill to anticipate successful production on a commercial scale from a combination of such elements, without increase in glycol-acid ratio. The record in fact reflects the contrary. The view that success would have been 'inherent' cannot, in this case, substitute for a showing of reasonable expectation of success. Inherency and obviousness are entirely different concepts. In re Spormann, 363 F.2d 444, 53 CCPA 1375 (1966); In re Adams, 356 F.2d 998, 53 CCPA 996 (1966).

The board cited the indication in both Pengilly and Munro that their processes led to rapid reaction time and concluded that improved reaction time would be expected if elements of those processes were combined. The evidence of record establishes, however, that reaction times of both prior processes lengthen as the processes are scaled up.

The board held the view that Munro's teaching of higher pressures to increase reaction rate would have provided an obvious solution to the problem Rinehart encountered in scaling up the process of Pengilly. But Rinehart's problem was not the need for increased reaction rate. It was, as the evidence established, the existence of lumps of frozen polymer. That problem is nowhere alluded to in either Pengilly or Munro, and of course no suggestion of a solution appears in either reference.

Moreover, Pengilly suggested that superatmospheric pressure was productive of certain disadvantages, particularly the need for use of a 'large excess' of glycol. The use of superatmospheric pressure in a direct esterification process was referred to in other prior patents of record. With the exception of Munro, however, each such reference cited disadvantages of its use or an inability to find it workable. Munro's disclosure of superatmospheric pressure is rendered an abstraction with respect to appellant's problem by Munro's indication of the same excess glycol requirement when a large scale operation is contemplated. Munro employs a large excess of glycol (a ratio of glycol to acid of 3:1) in his example 5, the only example devoted to larger scale production. Rinehart's large scale production process is limited to a substantially equimolar ratio of glycol to acid. In view of all of the evidence, we cannot agree that Munro would suggest to one skilled in the art the use of superatmospheric pressure to solve the problem of scaling up the process of Pengilly.

Similarly, we find no suggestion in Pengilly or in Munro that Pengilly's preformed ester be employed in Munro's process to overcome the problems encountered in scaling up the process of Munro. Munro, as co-inventor with Lewis in earlier British Patent No. 776,282, was familiar with the use of a preformed polyester in direct esterification, yet neither Munro nor his co- inventor Maclean suggested its use with superatmospheric pressure in the cited reference. We find that the Munro patent contains its own solution to large scale operation, i.e., the use of excess glycol referred to above. That solution is not employed by appellant.

Absence of any suggestion in either Pengilly or Munro that features of the process of one shoud be combined with features of the other to achieve the

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commercial scale production of which neither is capable requires a holding that the rejection herein was improper. In re Avery, 518 F.2d 1228 (CCPA 1975). In view of that holding, it is unnecessary to consider Rinehart's allegations of commercial success and satisfaction of long-felt need.

The decision of the board is reversed.

REVERSED.

END OF DOCUMENT

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(Cite as: 796 F.2d 436)

C

United States Court of Appeals,
Federal Circuit.

In re Richard M. DEMINSKI.

Appeal No. 85-2267.

July 8, 1986.

Inventor appealed decision of Patent and Trademark Office Board of Patent Appeals and Interferences which affirmed examiner's final rejection of claims's in inventor's utility patent application relating to high pressure gas transmission compressor. The Court of Appeals, Edward S. Smith, Circuit Judge, held that: (1) earlier double-acting piston pumps were properly considered as prior art within field of inventor's endeavor for purpose of patent application insofar as inventor sought to patent horizontally reciprocating, double-acting piston-type gas compressor, but (2) there was nothing in prior art references to suggest desirability, and thus obviousness, of designing valve assembly so that it could be removed as unit through opening at top of valve chamber.

Affirmed in part, and reversed in part.

West Headnotes

[1] Patents ⇐16.31
291k16.31 Most Cited Cases

Earlier double-acting piston pumps were properly considered as prior art within field of inventor's endeavor for purpose of patent application, with result that certain claims were unpatentable as obvious, insofar as inventor sought to patent horizontally reciprocating, double-acting piston-type gas compressor with essentially same function and structure as prior pumps through moving fluids by means of double-acting piston, cylinder and valves. 35 U.S.C.A. § 103.

[2] Patents ⇐16.31
291k16.31 Most Cited Cases

Earlier double-acting piston pumps were not prior art, providing inventor with motivation to design valve assembly vertically removable as unit, through designing compressor with four vertically oriented valve chambers containing valve assembly removable through opening at top of valve chamber, with result that claims relating to value assembly removable as unit were not obvious, as only prior pump teaching such removability was typically small, and required valve pieces to be removed item-by-item through turning pump upside down, by using tool, or by hand. 35 U.S.C.A. § 103.

Patents ⇐328(2)
291k328(2) Most Cited Cases

1,226,693, 1,946,166, 1,976,464. Cited as prior art.
*437 David E. Schmit, Frost & Jacobs, Cincinnati, Ohio, argued, for appellant. With him on brief, was Timothy J. O'Hearn, Cincinnati, Ohio.

John C. Martin, Associate Sol., Arlington, Va., argued, for appellee. With him on brief, were Joseph F. Nakamura, Solicitor, Washington, D.C., and Fred E. McKelvey, Deputy Sol., Woodbridge, Va.

Before BALDWIN, SMITH, and NEWMAN, Circuit Judges.

EDWARD S. SMITH, Circuit Judge.

This is an appeal by Richard M. Deminski (Deminski) from the February 25, 1985, decision of the Patent and Trademark Office Board of Patent Appeals and Interferences (board), in which the board affirmed the examiner's final rejection, under 35 U.S.C. § 103, of certain claims in Deminski's utility patent application, serial No. 177,863, relating to a high pressure gas transmission compressor. We affirm in part and reverse in part.

Issue

The issue is whether the board erred in affirming the examiner's rejection of claims 1-3, 6, 7, 17, 18, and 21 of the Deminski patent application, under 35 U.S.C. § 103, as unpatentable over the prior art. We affirm the rejection of claims 1-3, 6, and 7. We reverse the rejection of claims 17, 18, and 21.

Deminski's Invention

Deminski's invention "relates generally to double-acting high pressure gas transmission compressors," such as those used "for transmitting natural gas and other compressible fluids through pipe lines." More particularly, the invention is directed to a horizontally reciprocating, double-acting piston type gas compressor in which the valves can be removed easily for replacement.

The embodiment of Deminski's invention (Fig. 1) includes a block-like compressor housing (2) with a horizontal cylinder (3) which extends longitudinally through the housing and a double-acting piston (9) carrying piston rings (14). There are four openings (30) in the cylinder, with passageways (38) to four vertically disposed cylindrical valve chambers (32), which chambers are located at the four corners of the compressor housing (2). A suction valve (50), a discharge valve (40), and a baffle between the valves form a valve assembly which may be withdrawn as a unit from valve chamber (32).

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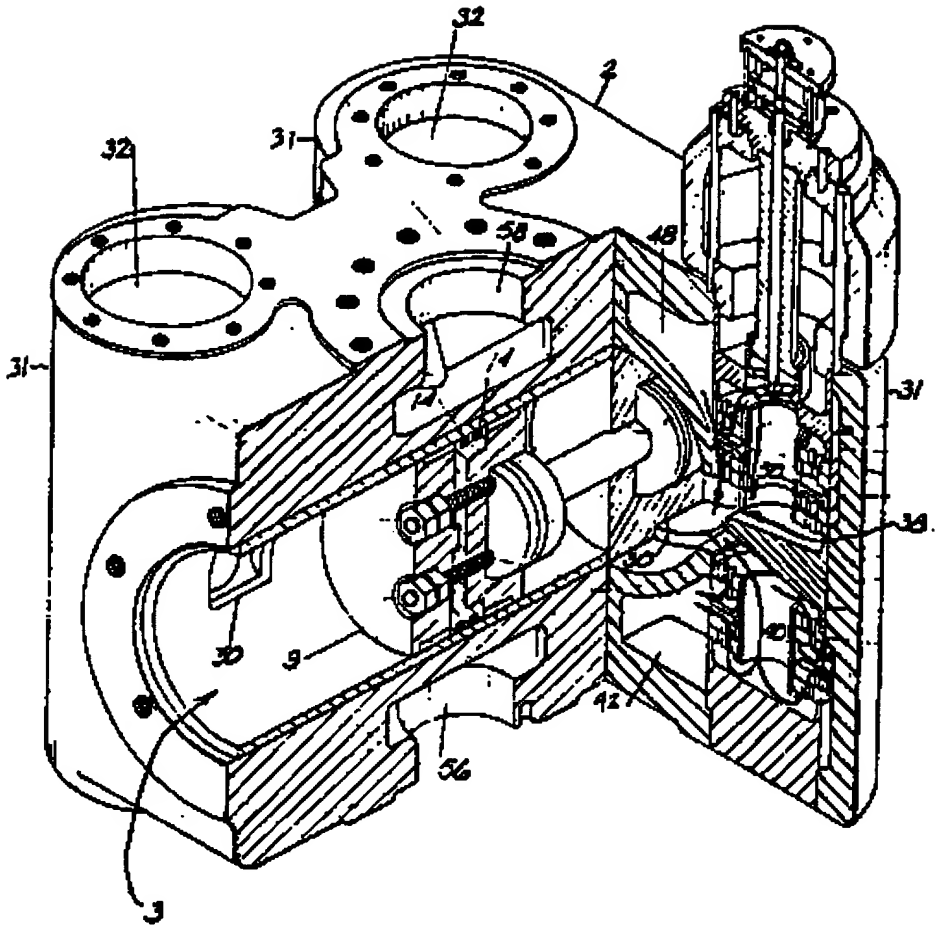

Claims on Appeal

Claims 1, 3, 6, 7, 17, 18, and 21 were rejected under 35 U.S.C. § 103 as unpatentable over Pocock U.S. Patent No. 1,226,693 in view of British Patent No. 1,332,774 and Shallenberg U.S. Patent No. 1,976,464. Briefly, the examiner and the board stated that it would have been obvious in view of the British reference to add two more valve chambers to Pocock, and in view of Shallenberg to move the cylinder upwardly so that it is above the bottom of the valve chambers.

Claim 2 was rejected under 35 U.S.C. § 103 as unpatentable over Pocock in view of the British reference and Shallenberg, and further in view of Kovach which teaches the use of a piston ring in a double-acting piston pump.

Prior Art Relied Upon by the Board

A. *Pocock.*

Pocock's U.S. Patent No. 1,226,693 teaches a double-acting piston pump. The pump is typically small and is used to pump water out of underground mines.

***439** A significant feature of Pocock is that the valve *stem* (27) (Figs. 2, 3) is easily removable because it is not rigidly connected to the valves or the valve seats. After the valve stem is removed, the valve pieces can be removed either by turning the pump upside down or by withdrawing the pieces one at a time with tools or by hand.

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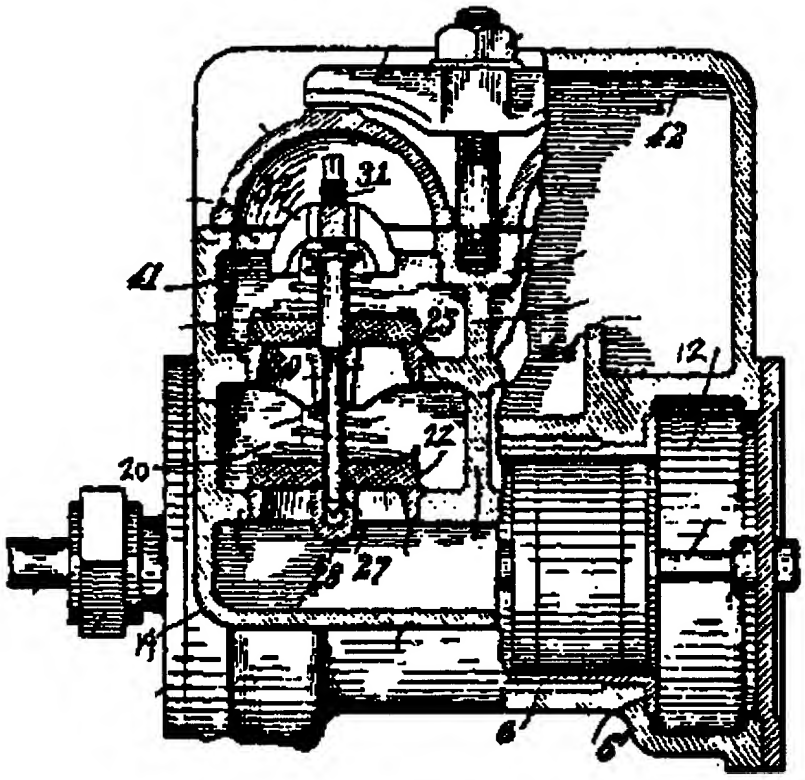

Fig. 2
(Pocock -- Side View)

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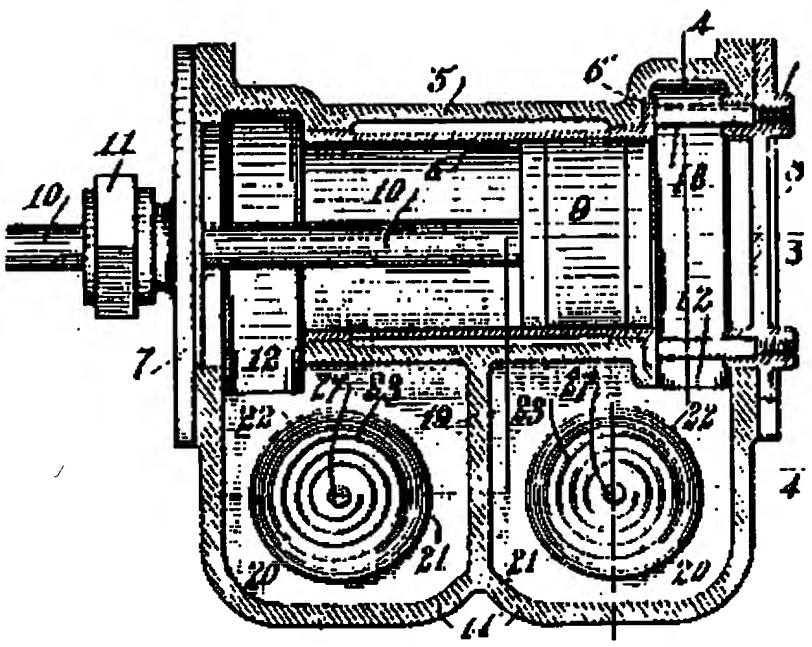

Fig. 3
(Pocock -- Top View)

Pocock shows two valve housings (14) located along the same side of the pump cylinder. The valve housings are vertically oriented, so that the valves can be removed vertically through the top of the housing. The Pocock structure does not allow for removal of the valve assembly as a unit.

B. *British Patent.*

The British Patent No. 1,332,774 is directed to a double-acting piston compressor with a horizontal cylinder (2), such as a high capacity piston compressor for use with gas pipelines (Fig. 4). The British patent shows four horizontal valve chambers. Two of the valve chambers are located above the cylinder and two of the chambers are located below the cylinder. Each valve chamber is perpendicular to the cylinder.

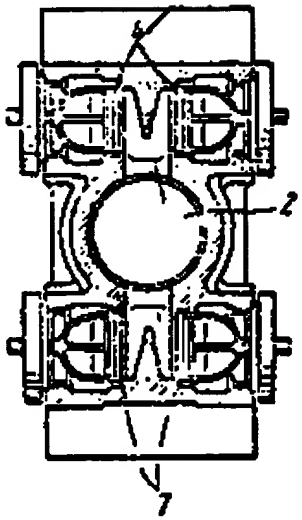

Fig. 4
(British Patent)

*441 C. *Shallenberg.*

Shallenberg, U.S. Patent No. 1,976,464, teaches a double-acting piston pump with a particular valve construction. The structure includes two distinct and separate valve chambers situated above the cylinder (Fig. 5). Each valve chamber contains two valves of the same type (*i.e.,* either two suction valves or two discharge valves). The disclosure indicates that two of the four valves could be placed below the cylinder and two above the cylinder but that the inventor believes it preferable to arrange them all above the cylinder because "that enables more ready installation and removal of the valves."

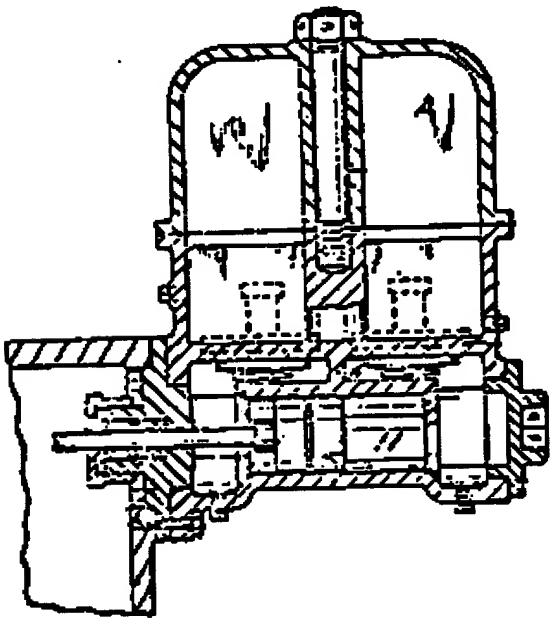

Fig. 5
(Shallenberg)

D. *Kovach.*

Kovach, U.S. Patent No. 1,946,166, discloses a particular valve construction for a reciprocating piston air pump. The only feature relied on by the examiner and by the board is that the piston is provided with piston rings as a seal.

Obviousness

A. *Prior Art and Ordinary Skill in the Art.*

[1] Deminski argues that the references applied by the examiner and by the board "are not properly contained within the scope of the [relevant] prior art," *i.e.,* they are "nonanalogous." Deminski contends that none of the references should be considered as prior art because none is directed to the problem of removing worn or damaged valves from compressors. In Deminski's view, the examiner and the board defined the problem too broadly by including both compressors and pumps in the prior art.

Deminski cites *Stratoflex, Inc. v. Aeroquip Corp.,*

in which this court stated that "[t]he scope of the prior art has been defined as that 'reasonably pertinent to the particular problem with which the inventor was involved.' " [FN1] The question in *Stratoflex *442 was whether rubber hose should be considered as prior art relevant to the claimed PTFE tubing. In finding that rubber hose was prior art, the court focused on only the second step of the two-step test for nonanalogous art which test had been stated in* Wood *in the following terms: [FN2]*

> FN1. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1535, 218 USPQ 871, 876 (Fed.Cir.1983) (quoting in turn from *In re Wood,* 599 F.2d 1032, 1036, 202 USPQ 171, 174 (CCPA 1979)).

> FN2. *Wood,* 559 F.2d at 1036, 202 USPQ at 174.

> The determination that a reference is from a nonanalogous art is therefore two-fold. First, we decide if the reference is within the field of the inventor's endeavor. If it is not, we proceed to determine whether the reference is reasonably pertinent to the particular problem with which the inventor was involved.

Here, the references satisfy the first inquiry because they are "within the field of the inventor's endeavor" of horizontally reciprocating, double-acting piston devices for moving fluids. We agree with the board that the cited pumps and compressors have essentially the same function and structure: they move fluids by means of a double-acting piston, a cylinder, and valves. [FN3] Consequently, the field of endeavor is the same for an inventor of either a pump or a compressor of the double-acting piston type. [FN4] Thus, the Pocock "pump" was correctly considered as prior art for the Deminski "compressor." It is even more clear that the British and Kovach references are within Deminski's field of endeavor because they are directed to *compressors* having horizontally reciprocating, double-acting pistons.

> FN3. *See In re Ellis,* 476 F.2d 1370, 1372, 177 USPQ 526, 527 (CCPA 1973) (cross reference in official search notes is some evidence of analogy, although "the similarities and differences in structure and function of the inventions disclosed in the references * * * carry far greater weight"). The nearly identical classifications of the application and references in the present case are the result of the close similarity in structure and function of the invention and the prior art.

> FN4. Deminski argues at length that the scope of his claims is limited by the language "a high-pressure gas transmission compressor." We need not decide whether the preamble is limiting in this case because the prior art would be the same for either pumps or compressors of the double- acting piston type. We acknowledge, however, that the prior art did not address Deminski's problem of how to remove a large and heavy valve assembly *as a unit.*

B. *Whether Deminski's Invention Would Have Been Obvious.*

We affirm the board's decision insofar as it affirms the examiner's rejection of claims 1, 3, 6, and 7 under 35 U.S.C. § 103 as unpatentable over Pocock in view of the British Patent No. 1,322,774 and Shallenberg. The examiner and the board correctly found that it would have been obvious in view of the British reference to add two more valve chambers to Pocock and in view of Shallenberg to move the cylinder upwardly so that it is above the bottom of the valve chambers.

We also affirm the rejection of claim 2 under 35 U.S.C. § 103 as unpatentable over Pocock in view of the British reference, Shallenberg, and further in view of Kovach, which teaches the use of a piston ring in a double- acting piston pump.

[2] We reverse the board's decision insofar as it affirms the examiner's rejection of claims 17, 18, and 21. The latter claims have the limitation that the valve sets in each valve chamber be connected in a way which will permit them to be withdrawn as a unit. There is nothing in the prior art references,

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either singly or in combination, " *'to suggest* the desirability, and thus the obviousness,' " of designing the valve assembly so that it can be removed as a unit. [FN5]

FN5. *Fromson v. Advance Offset Plate, Inc.*, 755 F.2d 1549, 1556, 225 USPQ 26, 31 (Fed.Cir.1985) (quoting *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 1462, 221 USPQ 481, 488 (Fed.Cir.1984)) (emphasis added in *Fromson*).

Simply put, Deminski solved the problem of how to remove the valve assembly by designing a compressor with four vertically oriented valve chambers. Each chamber ***443** contains a valve assembly which can be removed as a unit through the opening at the top of the valve chamber. Each of the four valve assembly units may be removed relatively easily by lifting vertically with a hoist.

Pocock teaches a pump in which only the valve *stem* is separately removable and replaceable. The Pocock structure requires the valve pieces to be removed item-by-item, by turning the pump upside down, by using a tool, or by hand. Because the Pocock structure is typically small, Pocock does not address Deminski's problem of how to remove a large and heavy valve assembly *as a unit.* Instead, Pocock teaches away from the invention of claims 17, 18, and 21 of Deminski's patent application.

There was no suggestion in the prior art to provide Deminski with the motivation to design the valve assembly so that it would be removable as a unit. The board argues that if Pocock had followed the "common practice" of attaching the valve stem to the valve structure, then the valve assembly would be removable as a unit. The only way the board could have arrived at its conclusion was through hindsight analysis by reading into the art Deminski's own teachings. Hindsight analysis is clearly improper, since the statutory test is whether "the subject matter as a whole would have been obvious at the time the invention was made." [FN6]

FN6. 35 U.S.C. § 103 (1982); *In re Sponnoble,* 405 F.2d 578, 585, 160 USPQ 237, 243 (CCPA 1969).

Conclusion

We affirm the board's decision insofar as it affirmed the examiner's rejection of claims 1-3, 6, and 7 in Deminski's patent application. We reverse the board's decision insofar as it affirmed the examiner's rejection of claims 17, 18, and 21 as unpatentable over the prior art under 35 U.S.C. § 103.

AFFIRMED IN PART, REVERSED IN PART.

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Westlaw.

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C

United States Court of Appeals,
Federal Circuit.

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July 8, 1986.

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Affirmed in part, and reversed in part.

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291k16.31 Most Cited Cases

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Patents ⇐328(2)
291k328(2) Most Cited Cases

1,226,693, 1,946,166, 1,976,464. Cited as prior art.

*437 David E. Schmit, Frost & Jacobs, Cincinnati, Ohio, argued, for appellant. With him on brief, was Timothy J. O'Hearn, Cincinnati, Ohio.

John C. Martin, Associate Sol., Arlington, Va., argued, for appellee. With him on brief, were Joseph F. Nakamura, Solicitor, Washington, D.C., and Fred E. McKelvey, Deputy Sol., Woodbridge, Va.

Before BALDWIN, SMITH, and NEWMAN, Circuit Judges.

EDWARD S. SMITH, Circuit Judge.

This is an appeal by Richard M. Deminski (Deminski) from the February 25, 1985, decision of the Patent and Trademark Office Board of Patent Appeals and Interferences (board), in which the board affirmed the examiner's final rejection, under 35 U.S.C. § 103, of certain claims in Deminski's utility patent application, serial No. 177,863, relating to a high pressure gas transmission compressor. We affirm in part and reverse in part.

Issue

The issue is whether the board erred in affirming the examiner's rejection of claims 1-3, 6, 7, 17, 18, and 21 of the Deminski patent application, under 35 U.S.C. § 103, as unpatentable over the prior art. We affirm the rejection of claims 1-3, 6, and 7. We reverse the rejection of claims 17, 18, and 21.

Deminski's Invention

Deminski's invention "relates generally to double-acting high pressure gas transmission compressors," such as those used "for transmitting natural gas and other compressible fluids through pipe lines." More particularly, the invention is directed to a horizontally reciprocating, double-acting piston type gas compressor in which the valves can be removed easily for replacement.

The embodiment of Deminski's invention (Fig. 1) includes a block-like compressor housing (2) with a horizontal cylinder (3) which extends longitudinally through the housing and a double-acting piston (9) carrying piston rings (14). There are four openings (30) in the cylinder, with passageways (38) to four vertically disposed cylindrical valve chambers (32), which chambers are located at the four corners of the compressor housing (2). A suction valve (50), a discharge valve (40), and a baffle between the valves form a valve assembly which may be withdrawn as a unit from valve chamber (32).

***438**

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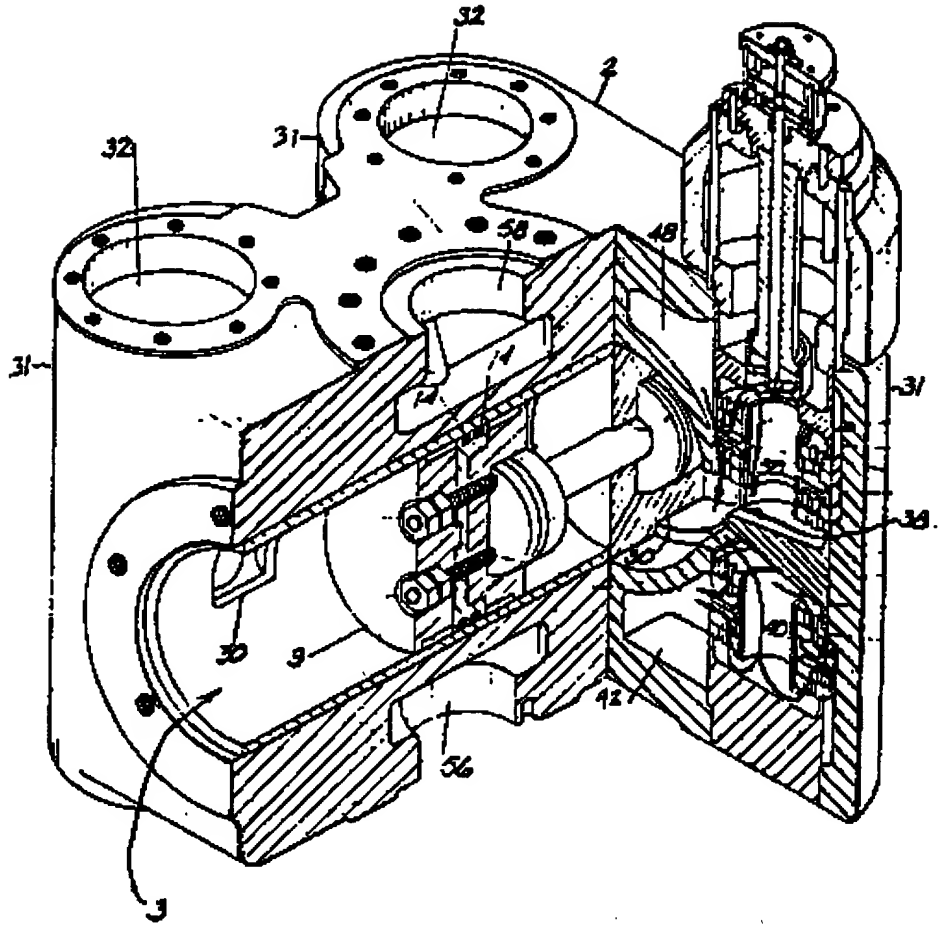
(Cite as: 796 F.2d 436)



Claims on Appeal

Claims 1, 3, 6, 7, 17, 18, and 21 were rejected under 35 U.S.C. § 103 as unpatentable over Pocock U.S. Patent No. 1,226,693 in view of British Patent No. 1,332,774 and Shallenberg U.S. Patent No. 1,976,464. Briefly, the examiner and the board stated that it would have been obvious in view of the British reference to add two more valve chambers to Pocock, and in view of Shallenberg to move the cylinder upwardly so that it is above the bottom of the valve chambers.

Claim 2 was rejected under 35 U.S.C. § 103 as unpatentable over Pocock in view of the British reference and Shallenberg, and further in view of Kovach which teaches the use of a piston ring in a double-acting piston pump.

Prior Art Relied Upon by the Board

A. *Pocock.*

Pocock's U.S. Patent No. 1,226,693 teaches a double-acting piston pump. The pump is typically small and is used to pump water out of underground mines.

***439** A significant feature of Pocock is that the valve *stem* (27) (Figs. 2, 3) is easily removable because it is not rigidly connected to the valves or the valve seats. After the valve stem is removed, the valve pieces can be removed either by turning the pump upside down or by withdrawing the pieces one at a time with tools or by hand.

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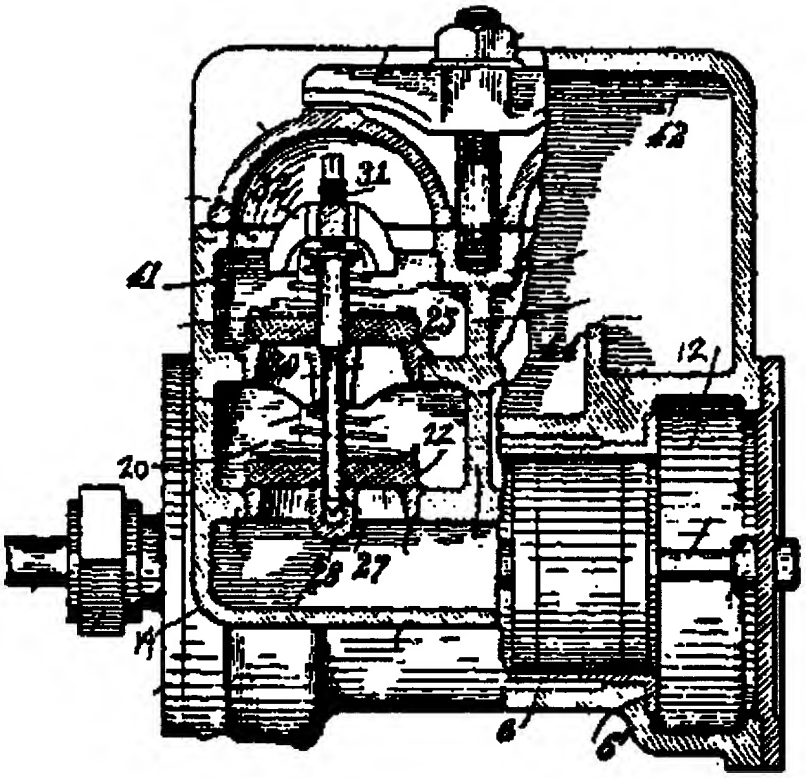

Fig. 2
(Pocock -- Side View)

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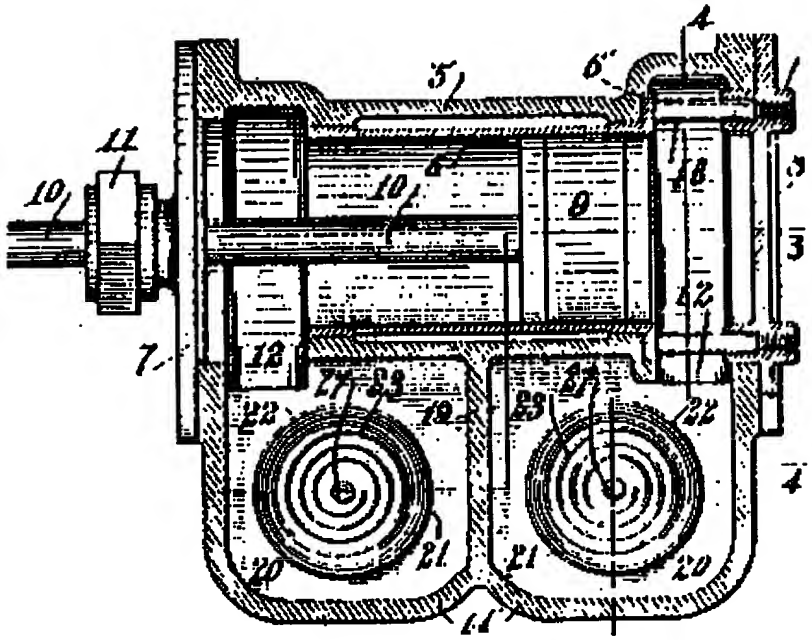

Fig. 3
(Pocock -- Top View)

Pocock shows two valve housings (14) located along the same side of the pump cylinder. The valve housings are vertically oriented, so that the valves can be removed vertically through the top of the housing. The Pocock structure does not allow for removal of the valve assembly as a unit.

B. *British Patent.*

The British Patent No. 1,332,774 is directed to a double-acting piston compressor with a horizontal cylinder (2), such as a high capacity piston compressor for use with gas pipelines (Fig. 4). The British patent shows four horizontal valve chambers. Two of the valve chambers are located above the cylinder and two of the chambers are located below the cylinder. Each valve chamber is perpendicular to the cylinder.

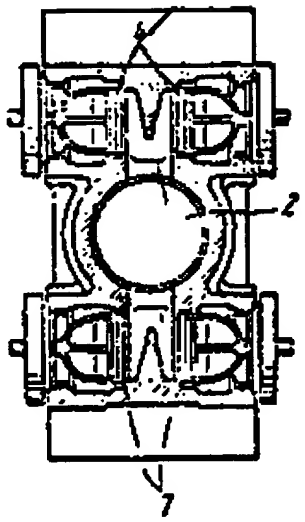

Fig. 4
(British Patent)

*441 C. *Shallenberg.*

Shallenberg, U.S. Patent No. 1,976,464, teaches a double-acting piston pump with a particular valve construction. The structure includes two distinct and separate valve chambers situated above the cylinder (Fig. 5). Each valve chamber contains two valves of the same type (*i.e.*, either two suction valves or two discharge valves). The disclosure indicates that two of the four valves could be placed below the cylinder and two above the cylinder but that the inventor believes it preferable to arrange them all above the cylinder because "that enables more ready installation and removal of the valves."

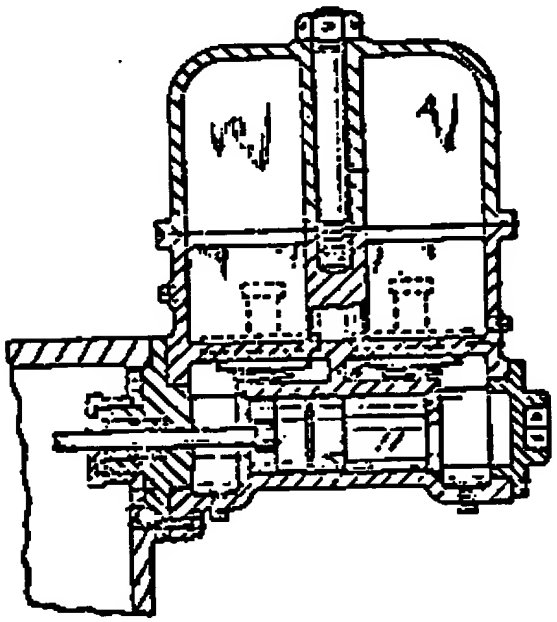

Fig. 5
(Shallenberg)

D. *Kovach.*

Kovach, U.S. Patent No. 1,946,166, discloses a particular valve construction for a reciprocating piston air pump. The only feature relied on by the examiner and by the board is that the piston is provided with piston rings as a seal.

Obviousness

A. *Prior Art and Ordinary Skill in the Art.*

[1] Deminski argues that the references applied by the examiner and by the board "are not properly contained within the scope of the [relevant] prior art," *i.e.*, they are "nonanalogous." Deminski contends that none of the references should be considered as prior art because none is directed to the problem of removing worn or damaged valves from compressors. In Deminski's view, the examiner and the board defined the problem too broadly by including both compressors and pumps in the prior art.

Deminski cites *Stratoflex, Inc. v. Aeroquip Corp.*,

in which this court stated that "[t]he scope of the prior art has been defined as that 'reasonably pertinent to the particular problem with which the inventor was involved.' " [FN1] The question in *Stratoflex *442 was whether rubber hose should be considered as prior art relevant to the claimed PTFE tubing. In finding that rubber hose was prior art, the court focused on only the second step of the two-step test for nonanalogous art which test had been stated in* Wood *in the following terms: [FN2]*

> FN1. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1535, 218 USPQ 871, 876 (Fed.Cir.1983) (quoting in turn from *In re Wood*, 599 F.2d 1032, 1036, 202 USPQ 171, 174 (CCPA 1979)).

> FN2. *Wood*, 559 F.2d at 1036, 202 USPQ at 174.

> The determination that a reference is from a nonanalogous art is therefore two-fold. First, we decide if the reference is within the field of the inventor's endeavor. If it is not, we proceed to determine whether the reference is reasonably pertinent to the particular problem with which the inventor was involved.

Here, the references satisfy the first inquiry because they are "within the field of the inventor's endeavor" of horizontally reciprocating, double-acting piston devices for moving fluids. We agree with the board that the cited pumps and compressors have essentially the same function and structure: they move fluids by means of a double-acting piston, a cylinder, and valves. [FN3] Consequently, the field of endeavor is the same for an inventor of either a pump or a compressor of the double-acting piston type. [FN4] Thus, the Pocock "pump" was correctly considered as prior art for the Deminski "compressor." It is even more clear that the British and Kovach references are within Deminski's field of endeavor because they are directed to *compressors* having horizontally reciprocating, double-acting pistons.

> FN3. *See In re Ellis*, 476 F.2d 1370, 1372, 177 USPQ 526, 527 (CCPA 1973) (cross reference in official search notes is some evidence of analogy, although "the similarities and differences in structure and function of the inventions disclosed in the references * * * carry far greater weight"). The nearly identical classifications of the application and references in the present case are the result of the close similarity in structure and function of the invention and the prior art.

> FN4. Deminski argues at length that the scope of his claims is limited by the language "a high-pressure gas transmission compressor." We need not decide whether the preamble is limiting in this case because the prior art would be the same for either pumps or compressors of the double- acting piston type. We acknowledge, however, that the prior art did not address Deminski's problem of how to remove a large and heavy valve assembly *as a unit.*

B. *Whether Deminski's Invention Would Have Been Obvious.*

We affirm the board's decision insofar as it affirms the examiner's rejection of claims 1, 3, 6, and 7 under 35 U.S.C. § 103 as unpatentable over Pocock in view of the British Patent No. 1,322,774 and Shallenberg. The examiner and the board correctly found that it would have been obvious in view of the British reference to add two more valve chambers to Pocock and in view of Shallenberg to move the cylinder upwardly so that it is above the bottom of the valve chambers.

We also affirm the rejection of claim 2 under 35 U.S.C. § 103 as unpatentable over Pocock in view of the British reference, Shallenberg, and further in view of Kovach, which teaches the use of a piston ring in a double- acting piston pump.

[2] We reverse the board's decision insofar as it affirms the examiner's rejection of claims 17, 18, and 21. The latter claims have the limitation that the valve sets in each valve chamber be connected in a way which will permit them to be withdrawn as a unit. There is nothing in the prior art references,

either singly or in combination, " '*to suggest* the desirability, and thus the obviousness,' " of designing the valve assembly so that it can be removed as a unit. [FN5]

FN5. *Fromson v. Advance Offset Plate, Inc.*, 755 F.2d 1549, 1556, 225 USPQ 26, 31 (Fed.Cir.1985) (quoting *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 1462, 221 USPQ 481, 488 (Fed.Cir.1984)) (emphasis added in *Fromson*).

Simply put, Deminski solved the problem of how to remove the valve assembly by designing a compressor with four vertically oriented valve chambers. Each chamber ***443** contains a valve assembly which can be removed as a unit through the opening at the top of the valve chamber. Each of the four valve assembly units may be removed relatively easily by lifting vertically with a hoist.

Pocock teaches a pump in which only the valve *stem* is separately removable and replaceable. The Pocock structure requires the valve pieces to be removed item-by-item, by turning the pump upside down, by using a tool, or by hand. Because the Pocock structure is typically small, Pocock does not address Deminski's problem of how to remove a large and heavy valve assembly *as a unit.* Instead, Pocock teaches away from the invention of claims 17, 18, and 21 of Deminski's patent application.

There was no suggestion in the prior art to provide Deminski with the motivation to design the valve assembly so that it would be removable as a unit. The board argues that if Pocock had followed the "common practice" of attaching the valve stem to the valve structure, then the valve assembly would be removable as a unit. The only way the board could have arrived at its conclusion was through hindsight analysis by reading into the art Deminski's own teachings. Hindsight analysis is clearly improper, since the statutory test is whether "the subject matter as a whole would have been obvious at the time the invention was made." [FN6]

FN6. 35 U.S.C. § 103 (1982); *In re Sponnoble,* 405 F.2d 578, 585, 160 USPQ 237, 243 (CCPA 1969).

Conclusion

We affirm the board's decision insofar as it affirmed the examiner's rejection of claims 1-3, 6, and 7 in Deminski's patent application. We reverse the board's decision insofar as it affirmed the examiner's rejection of claims 17, 18, and 21 as unpatentable over the prior art under 35 U.S.C. § 103.

AFFIRMED IN PART, REVERSED IN PART.

796 F.2d 436, 230 U.S.P.Q. 313

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Westlaw.

892 F.2d 1547
13 U.S.P.Q.2d 1301
(Cite as: 892 F.2d 1547)

H

United States Court of Appeals,
Federal Circuit.

BECKMAN INSTRUMENTS, INC.,
Plaintiff/Cross-Appellant,
v.
LKB PRODUKTER AB, Wallac Oy, Pharmacia LKB Nuclear Microtomy, Inc. and Pharmacia LKB Biotechnology, Inc.,
Defendants-Appellants.

Nos. 88-1582, 88-1583.

Dec. 13, 1989.

Defendant in patent infringement action appealed from judgment of the United States District Court for the District of Maryland, Norman Park Ramsey, J., on jury verdict that defendant infringed two claims of patent and from court's decision, 703 F.Supp. 408, to deny motion for new trial and to impose plaintiff's attorney fees and expenses upon defendant. The Court of Appeals, Rich, Circuit Judge, held that: (1) jury finding of validity and infringement with respect to method claims was consistent with finding of invalidity and noninfringement with respect to apparatus claim; (2) any jury confusion concerning availability of nonenabling references as prior art was the result of expert testimony, not of jury instruction; (3) finding that case was exceptional for attorney fee purposes was not clearly erroneous, but award of almost $2 million representing all of patentee's attorney fees was unreasonable; and (4) patentee's fees and expenses for experts and consultants were awardable under attorney fee provision.

Affirmed in part, vacated in part, and remanded.

West Headnotes

[1] Patents ⇐314(6)
291k314(6) Most Cited Cases

Jury finding of validity and infringement with respect to method claims was consistent with finding of invalidity and nonfringement with respect to apparatus claims.

[2] Patents ⇐16(2)
291k16(2) Most Cited Cases

Even if reference discloses inoperative device, it is prior art for all that it teaches.

[3] Patents ⇐16(2)
291k16(2) Most Cited Cases

In order to render claimed apparatus or method obvious, prior art must enable one skilled in art to make and use apparatus or method.

[4] Patents ⇐324.55(2)
291k324.55(2) Most Cited Cases

While decision to award attorney fees in exceptional patent infringement cases is discretionary with trial judge, finding that case is "exceptional" is finding of fact reviewable under clearly erroneous standard. 35 U.S.C.A. § 285.

[5] Patents ⇐325.11(2.1)
291k325.11(2.1) Most Cited Cases
(Formerly 291k325.11(2))

Among types of conduct which can form basis for finding patent infringement case exceptional for attorney fee purposes are willful infringement, inequitable conduct before Patent and Trademark Office, misconduct during litigation, vexatious or unjustified litigation, and frivolous suit. 35 U.S.C.A. § 285.

[6] Patents ⇐325.11(5)
291k325.11(5) Most Cited Cases

Conduct forming basis for finding patent infringement case exceptional for purposes of awarding attorney fees must be supported by clear and convincing evidence. 35 U.S.C.A. § 285.

[7] Patents ⚿325.11(5)
291k325.11(5) Most Cited Cases

Finding that patent infringement case was exceptional and warranted award of reasonable attorney fees to patentee because infringer's litigation strategy was vexatious and infringer had deliberately and repeatedly violated permanent injunction was not clearly erroneous; although specific examples of vexatious conduct recited by district court--dropping of jurisdiction defense and antitrust counterclaim and assertion of "baseless" equitable conduct defense-- were somewhat tenuous, there was sufficient evidence of additional vexatious conduct on part of infringer. 35 U.S.C.A. § 285.

[8] Patents ⚿324.5
291k324.5 Most Cited Cases

[8] Patents ⚿324.55(2)
291k324.55(2) Most Cited Cases

District court's decision regarding award and amount of attorney fees in patent infringement case will be upheld unless it is based on error of law or clearly erroneous fact-findings or unless district court committed clear error of judgment. 35 U.S.C.A. § 285.

[9] Patents ⚿325.11(5)
291k325.11(5) Most Cited Cases

Award of almost $2 million representing all of patentee's attorney fees in action against nonwillful infringer, was excessive; although infringer was guilty of engaging in vexatious litigation strategy and of deliberately violating injunctive order, lawsuit was instigated prior to any misconduct by infringer and patentee who would have incurred substantial legal expenses regardless of that misconduct, and patentee prevailed on only two of five infringement claims. 35 U.S.C.A. § 285.

[10] Patents ⚿325.11(2.1)
291k325.11(2.1) Most Cited Cases
(Formerly 291k325.11(2))

When sole basis for imposing attorney fees in patent infringement case is "gross injustice" and one party prevails on some claims in issue while the other party prevails on others, this fact should be taken into account when determining amount of attorney fees; in other words, amount of fees awarded to "prevailing party" should bear some relation to extent to which that party actually prevailed. 35 U.S.C.A. § 285.

[11] Patents ⚿325.11(1)
291k325.11(1) Most Cited Cases

Patentee's fees and expenses for experts and consultants were awardable in patent infringement action under attorney fee provision. 35 U.S.C.A. § 285.

Patents ⚿328(2)
291k328(2) Most Cited Cases

4,029,401. Valid and infringed.
***1548** Donald R. Dunner, of Finnegan, Henderson, Farabow, Garrett & Dunner, Washington, D.C., argued for plaintiff/cross-appellant. With him on the brief were Roger D. Taylor and Darrel C. Karl, of Finnegan, Henderson, Farabow, Garrett & Dunner.

Robert H. Stier, Jr., of Bernstein, Shur, Sawyer & Nelson, Portland, Me., argued for defendants-appellants. Of counsel were Philip L. Cohan, of Piper & Marbury, Washington, D.C., and Charles L. Gholz, of Oblon, Fisher, Spivak, McClelland & Maier, Arlington, Va.

Before RICH, Circuit Judge, MILLER, Senior Circuit Judge, and ARCHER, Circuit Judge.

RICH, Circuit Judge.

Defendants LKB Produkter AB, Wallac Oy, Pharmacia LKB Nuclear Microtomy, Inc., and Pharmacia LKB Biotechnology, Inc. (collectively LKB) appeal from the judgment of the United States District Court for the District of Maryland entered upon a jury verdict that LKB infringed claims 2 and 4 of U.S. Patent No. 4,029,401 ('401). LKB also appeals from the district court's decision, reported in *Beckman Instruments, Inc. v. LKB Produkter AB,* 703 F.Supp. 408, 8 USPQ2d 1605 (D.Md.1988), to deny LKB's motion for a new trial and to impose plaintiff's attorney fees and expenses

on LKB under 35 U.S.C. § 285. Plaintiff Beckman Instruments, Inc. (Beckman) cross-appeals based upon the district court's decision not to include Beckman's fees and expenses for expert witnesses and consultants in its calculation of attorney fees. We affirm-in- part, vacate-in-part, and remand.

***1549** BACKGROUND

Patent '401 to Nather is for methods and apparatus for improving the accuracy of counting techniques in liquid scintillation counters (LSC's). LSC's are used in biological and pharmacological research to measure the amount of a radioactive tracer isotope present in a liquid biological sample. They detect light flashes or scintillations caused by radioactive emissions within the sample and convert those light flashes into electronic pulses. The electronic pulses are then sorted according to their amplitude and frequency, and displayed in a characteristic distribution curve or spectrum for the isotope being measured. The amount of the isotope present can then be calculated.

Researchers have long known that LSC's suffer from a phenomenon known as "quench". Quench is an interference with an LSC's ability to detect the full number and intensity of the scintillations in a given sample due to the sample's chemical or color content. In the mid-1960's, several groups of researchers filed patent applications on methods and apparatus which would compensate for the effect of quench. One of these applications belonged to Nather, which, after an extended prosecution including an interference proceeding, issued as the '401 patent on June 14, 1977.

LKB is in the business of making LSC's, which it sells in the United States and elsewhere. One such LSC manufactured by LKB includes an "auto window" chip within its computer hardware. This auto window chip performs the function of automatically compensating for quench in the sample.

Beckman filed its complaint on July 23, 1985, alleging that the LKB models which contain the auto window feature infringe claims 3-7 of the '401 patent. Several defenses were raised, including invalidity of the patent, inequitable conduct, and lack of personal jurisdiction over co-defendant LKB Produkter. In addition, LKB filed an antitrust counterclaim. The personal jurisdiction defense and the antitrust counterclaim were eventually dropped by LKB. The inequitable conduct defense was severed for a separate bench trial following a jury trial of the validity and infringement issues.

The jury found the three apparatus claims in issue (3, 5 and 6) invalid and not infringed and found the two method claims (4 and 7) "valid" [sic, not proved invalid] and infringed. The jury also found that the infringement was not willful and awarded damages of $1,028,000. Upon hearing further testimony concerning the inequitable conduct issue, the court found no basis for a holding of inequitable conduct, and so entered judgment for Beckman on the jury's verdict. *Beckman Instruments, Inc. v. LKB Produkter AB,* 5 USPQ2d 1462 (D.Md.1987).

The judge also entered a permanent injunction prohibiting LKB from future infringement of the '401 patent. The exact wording of a portion of the injunction is as follows:

> Defendants are further ordered, within 30 days of the effective date of this order, to deliver to counsel for plaintiffs for destruction all [auto window chips] ... which are in the defendants' possession, custody, or control within the United States....

Counsel for LKB apparently concluded that the above language gave LKB the option to ship the auto window chips out of the United States within the 30-day period instead of surrendering them for destruction. Therefore, a great many of the auto window chips in the U.S. at the date of the injunctive order were shipped to LKB's business in Finland. Ten demonstrator LSC's which included the auto window feature were allowed to remain in the United States. The district court found these activities to be a deliberate and repeated violation of the injunction. *Beckman,* 703 F.Supp. at 410, 8 USPQ2d at 1608.

Finally, the district court found the case to be "exceptional", and so awarded attorney fees and litigation expenses to Beckman under 35 U.S.C. § 285. In holding the case exceptional, the court relied on both the alleged violations of the injunction and LKB's vexatious litigation strategy. 703 F.Supp. at 410, 8 USPQ2d at 1607. The ***1550** district court awarded all of Beckman's attorney fees and expenses (totalling $1,969,664.44) except

for those relating to the fees and expenses of expert witnesses and consultants (totalling $409,406.10), which the court was not certain were awardable under 35 U.S.C. § 285.

OPINION

I. The Jury Verdict

[1] LKB maintains that the jury verdict should be vacated because apparatus claims 3, 5 and 6, which were found both invalid and non-infringed, are so similar to method claims 4 and 7, which were found both valid and infringed, that the jury's verdict is inherently inconsistent. As we stated in *Allen Organ Co. v. Kimball International Inc.,* 839 F.2d 1556, 1563, 5 USPQ2d 1769, 1774 (Fed.Cir.), *cert. denied,* 488 U.S. 850, 109 S.Ct. 132, 102 L.Ed.2d 104 (1988), the issue of inconsistent jury findings is a procedural matter not unique to patent law, and as such, we apply the discernable law of the forum.

Under the law of the Fourth Circuit, when the jury's findings apparently conflict, "the court has a duty to harmonize the answers, if it is possible to do so under a fair reading of them." *Ladnier v. Murray,* 769 F.2d 195, 198 (4th Cir.1985) (citations omitted). On LKB's motion for a new trial, the district court found no conflict in the jury's findings and held that: (1) LKB had waived any objection concerning the findings on validity by failing to object to the jury instruction that "each claim of a patent ... is presumed valid independently of the validity of any other claims of the patent"; and (2) since the analysis for determining infringement is different for method claims than for apparatus claims, the jury's verdict is not so inconsistent as to be irrational. *Beckman,* 703 F.Supp. at 412-13, 8 USPQ2d at 1606. Upon review of the record before us, we are not convinced that the district court made an error of law in reconciling the jury's findings, and so affirm the denial of a new trial.

II. The Allegedly Erroneous Jury Instruction

LKB also appeals the denial of a new trial based on an allegedly erroneous jury instruction concerning the availability of non-enabling references as prior art. The particular language which LKB considers erroneous is as follows:

> For the Jordan patent to anticipate claims 5 and 7 of the '401 patent, it must expressly or inherently teach the entire claim.
>
> A prior art reference must be enabling before it can invalidate the '401 patent. That is, it must provide a description sufficient to teach a person of ordinary skill in the art how to make and use the apparatus or process. However, it is not necessary that the prior art have been actually made in order to satisfy the enablement requirement.
>
> ....
>
> References relied upon to support a rejection for obviousness must provide an enabling disclosure. That is to say, they must place the claimed invention in the possession of the public.

LKB's objection lies not so much with the instructions itself, but with the combination of the instruction and certain expert testimony by Beckman's expert witness. Specifically, one of the issues argued at trial was whether or not the device disclosed in the Jordan patent was operable to achieve its stated goal. After presenting expert testimony that it was not, Beckman's patent expert testified as follows:

> Q. Now, assuming that their testimony on whether or not Jordan worked is credible, what impact does that have on whether Jordan can be relied on to invalidate the Nather patent?
>
> A. Well, a piece of prior art that doesn't work is not prior art.
>
> Q. What does that mean in terms of whether it can be relied on to invalidate the patent?
>
> A. It means it can't be relied on.
>
> Q. Why is that the basic rule or principle--
>
> A. It doesn't teach anything useful or helpful, the technology is useless. ***1551** It doesn't operate and therefore doesn't contribute anything and therefore can't be prior art to somebody else.

LKB contends that the combination of the jury instruction and the above testimony would improperly lead the jury to believe that if the Jordan device was not operable, it could be disregarded as prior art.

[2] First, the above testimony of Beckman's expert witness was clearly a misstatement of the law. Even if a reference discloses an inoperative device, it is prior art for all that it teaches. 2 D. Chisum, *Patents* § 5.03[3] (1989); *Minnesota Min. & Mfg. Co. v. Blume,* 684 F.2d 1166, 1172, 215 USPQ 585, 590 (6th Cir.1982) (dictum), *cert. denied,* 460 U.S. 1047, 103 S.Ct. 1449, 75 L.Ed.2d 803 (1983).

[3] Second, the jury instruction complained of is a correct statement of the law. In order to render a claimed apparatus or method obvious, the prior art must enable one skilled in the art to make and use the apparatus or method. *In re Payne,* 606 F.2d 303, 314, 203 USPQ 245, 255 (CCPA 1979). Therefore, LKB has no grounds for complaining that the jury instruction was wrong. If in fact the jury was confused by the combination of the jury instruction and the expert testimony, the fault is with the expert testimony, not the jury instruction. In such a case, LKB should not try to correct the error by objecting to the jury instruction, but by discrediting the erroneous expert testimony either through cross-examination or through its own expert testimony.

Therefore, the district court correctly denied LKB's motion for a new trial based on the allegedly erroneous jury instruction.

III. The Award of Attorney Fees
(a) Exceptional case

[4][5][6] 35 U.S.C. § 285 provides that the court in "exceptional cases may award reasonable attorney fees to the prevailing party." While the decision to award attorney fees is discretionary with the trial judge, the finding that a case is "exceptional" is a finding of fact reviewable under the "clearly erroneous" standard. *Reactive Metals and Alloys Corp. v. ESM, Inc.,* 769 F.2d 1578, 1582-83, 226 USPQ 821, 824 (Fed.Cir.1985). Among the types of conduct which can form a basis for finding a case exceptional are willful infringement, inequitable conduct before the P.T.O., misconduct during litigation, vexatious or unjustified litigation, and frivolous suit. *Standard Oil Co. v. American Cyanamid Co.,* 774 F.2d 448, 455, 227 USPQ 293, 298 (Fed.Cir.1985). Such conduct must be supported by clear and convincing evidence. *Reactive Metals,* 769 F.2d at 1582, 226 USPQ at 824.

[7] The district court found the case exceptional because LKB's litigation strategy was vexatious and because LKB had deliberately and repeatedly violated the permanent injunction. The court gives three examples of LKB's vexatious conduct: the jurisdiction defense which was dropped, the antitrust counterclaim which was dropped, and the inequitable conduct defense which was found to be baseless. In arguing that the court erred in finding the case exceptional, LKB maintains that we should review only the three particular examples cited by the district court. We disagree. While it is necessary for the district court to articulate the particular factual findings on which the ultimate finding of "exceptional circumstances" is based, *Id.,* when the court's finding of vexatious litigation is based on a "strategy", we do not feel that it is necessary for the district court to set forth every underlying fact which contributed to its conclusion.

Viewed individually, the specific examples of vexatious conduct recited by the district court are somewhat tenuous. In particular, we find it difficult to agree that the inequitable conduct defense was "baseless" when it survived a motion for summary judgment and was rejected only after findings were made on disputed facts (*see Beckman Instruments,* 5 USPQ2d at 1463). With respect to the other defense and counterclaim which were dropped, the mere fact that an issue was pleaded and then dropped prior to trial does not in itself establish vexatious litigation. *See* ***1552Stickle** *v. Heublein, Inc.,* 716 F.2d 1550, 219 USPQ 377 (Fed.Cir.1983).

However, the district court's finding of exceptional circumstances is based on a *strategy* of vexatious activity. The three specific examples discussed above are clearly indicated to be merely that--examples. There is certainly sufficient evidence in the record to support a finding that there was additional vexatious conduct on the part of LKB. [FN1] While it is difficult to infer bad faith on the part of LKB when each action is viewed individually, when viewed together, we cannot say that the district court's finding of vexatious litigation was clearly erroneous. This is especially true considering that the district judge was in much the best position to monitor LKB's litigation "strategy." [FN2]

FN1. For example, there is evidence in the record that LKB pleaded further defenses which were of only marginal relevance to the case, and engaged in various discovery and trial abuses. It is difficult from the "cold record" before us to get a sense of the extent of the abuses or of the good or bad faith involved. Therefore, we defer to

the opinion of the trial judge who was actively involved in the proceedings.

FN2. LKB also contends that it was improper for the district court to consider a non-patent claim, namely the antitrust counterclaim, in a recovery under 35 U.S.C. § 285. However, in an action having both patent and non-patent claims, recovery may be had under § 285 for the non-patent claims if the issues involved therewith are intertwined with the patent issues. *See Stickle v. Heublein,* 716 F.2d at 1564, 219 USPQ at 387. Since LKB's antitrust claim was based on alleged inequitable conduct in the PTO, this is certainly the case in the present litigation.

LKB has characterized the district court's findings concerning violation of the injunction as further examples of their alleged "vexatious conduct." However, we are satisfied that a fair reading of the district court's opinion indicates that the violations of the injunction constituted an additional basis for finding exceptional circumstances. Such activity could certainly be said to fall under the category of "litigation misconduct." And while LKB contends that the violations of the injunction occurred through honest mistake and oversight, we agree with the district court that the injunction is clear on its face. We conclude that the district court's findings concerning the violations of the injunction are not clearly erroneous.

In view of the foregoing, we affirm the district court's finding that the case is "exceptional."

(b) Amounts

[8] The next step is to determine whether the district court abused its discretion in awarding fees and in setting the amount of the fees. The district court's decision will be upheld unless it is based on an error of law or clearly erroneous fact findings, or unless the district court committed a clear error of judgment. *J.P. Stevens Co. v. Lex Tex Ltd.,* 822 F.2d 1047, 1050, 3 USPQ2d 1235, 1237 (Fed.Cir.1987); *PPG Industries Inc. v. Celanese Polymer Specialties Co.,* 840 F.2d 1565, 1567, 6 USPQ2d 1010, 1013 (Fed.Cir.1988). While we find no abuse of discretion in the district court's decision to award fees, we find that the amount of the fees awarded is unreasonable, and to that extent an abuse of discretion.

[9] The purpose of § 285 when applied to accused infringers is generally said to be two-fold: one, it discourages infringement by penalizing the infringer; and two, it prevents "gross injustice" when the accused infringer has litigated in bad faith. *See Machinery Corp. of America v. Gullfiber AB,* 774 F.2d 467, 227 USPQ 368 (Fed.Cir.1985); *Rohm & Haas Co. v. Crystal Chemical Co.,* 736 F.2d 688, 222 USPQ 97 (Fed.Cir.1984). However, we are aware of few cases in which a patent owner has been granted attorney fees solely on the basis of litigation misconduct, without a concurrent finding of willful infringement. [FN3]] ***1553** In the present case, the jury explicitly found the infringement to be not willful, a finding which the trial judge did not disturb.

FN3. In *Livesay Window Co. v. Livesay Industries, Inc.,* 251 F.2d 469, 116 USPQ 167 (5th Cir.1958), the court upheld an award of attorney fees against an infringer without a finding of willful infringement. However, in that case there was extensive evidence of litigation misconduct extending from the beginning of the lawsuit through 19 years of litigation. In *Philip v. Mayer, Rothkopf Industries, Inc.,* 204 USPQ 753 (E.D.N.Y.1979), *aff'd,* 635 F.2d 1056, 208 USPQ 625 (2nd Cir.1980), the district court awarded partial attorney fees for litigation misconduct despite a finding that the infringement was not willful. However, the court limited recovery to the fees expended in responding to the infringer's misconduct.

There being no willful infringement in this case, the purpose of discouraging infringement is not relevant. Thus, the fee award can be justified solely by the need to prevent gross injustice. Since any injustice present in this case is based upon LKB's bad faith and misconduct during litigation, the penalty imposed must in some way be related to bad faith and misconduct. While we can certainly imagine a case in which litigation misconduct

would justify an award of attorney fees for the entire litigation (see *Livesay Window Co.,* supra, note 3), we are not persuaded that this is the case here.

The district court found that LKB was guilty of engaging in a vexatious litigation strategy and of deliberately violating the injunctive order. While, as related above, we do not consider this finding to be clearly erroneous, we are not satisfied that such conduct justifies imposing *all* of Beckman's attorney fees, totalling almost $2,000,000, on LKB. The present lawsuit was instigated by Beckman prior to any misconduct by LKB, and Beckman would have incurred substantial legal expenses regardless of LKB's misconduct. In this respect, the case differs from cases in which willful infringement on the part of an infringer or inequitable conduct on the part of a patentee *led* to the bringing of the lawsuit. It was only after the lawsuit was begun that LKB engaged in misconduct, requiring Beckman to expend *extra* legal effort to counteract their misconduct.

To require Beckman to pay its attorneys to defend against LKB's vexatious litigation strategy and misconduct would be a gross injustice. However, that can be avoided by awarding Beckman the portion of its attorney fees which related to the vexatious litigation strategy and other misconduct. The determination of the amount of the award remains within the discretion of the trial court, since it is the trial judge who is in the best position to know how severely LKB's misconduct has affected the litigation. However, the trial judge here did not in any way consider the extent of LKB's misconduct in determining the amount of damages; once the trial judge determined that the case was "exceptional," he awarded all of Beckman's attorney fees, checking only to make sure that the sum was reasonable in relation to the entire lawsuit. Accordingly, we hold that the trial judge's failure to take into account the particular misconduct involved in determining the amount of fees was an abuse of discretion.

Furthermore, while the parties did not discuss the issue on appeal, § 285 provides only for attorney fees being paid to the *prevailing* party. In the present case, Beckman accused LKB of infringing five claims of the '401 patent; of these claims, only two were found not to be invalid and to be infringed. The other three claims were found invalid and not infringed. Therefore, there is some question whether Beckman can be considered altogether a "prevailing party" for the purpose of § 285. Once again, we are given very little assistance by the case law, since very few cases have involved an award of attorney fees after a "split" jury verdict. The commentators seem to suggest, however, that the correct approach is either to deny fees entirely, or to grant fees only to the extent that a party "prevailed." *See* 5 D. Chisum, *Patents* § 20.03[4] (1989); A. Ahart, *Attorneys' Fees: The Patent Experience,* 57 J. Pat. Off. Soc'y 608 (1975). *See also Dixie Cup v. Paper Container Mfg. Co.,* 169 F.2d 645, 78 USPQ 222 (7th Cir.1948); *Cf. Hensley v. Eckerhart,* 461 U.S. 424, 103 S.Ct. 1933, 76 L.Ed.2d 40 (1983) (when awarding fees under 42 USC 1988, the extent to which the plaintiff succeeded must be taken into account in determining reasonable fees).

[10] When infringement is found to be willful, the policy behind § 285 of discouraging infringement might justify imposing all of the patent owner's attorney fees on the infringer, even if the infringer prevailed as to some of the claims in suit. ***1554** However, we are of the opinion that when the sole basis for imposing attorney fees is "gross injustice," and one party prevails on some claims in issue while the other party prevails on other claims, this fact should be taken into account when determining the amount of fees under § 285. In other words, the amount of fees awarded to the "prevailing party" should bear some relation to the extent to which that party actually prevailed. We hold the failure of the district court to take into account this factor in assessing fees in the present case constituted an abuse of discretion.

Since the district court abused its discretion in determining the amount of fees to be awarded, we *vacate* the award of attorney fees, and remand for a new determination of reasonable fees upon consideration of the factors discussed above.

(c) Fees of Experts and Consultants

[11] Finally, with respect to Beckman's cross-appeal, the district court refused to award Beckman's fees and expenses for experts and consultants, indicating that it was not clear to the court that such fees and expenses were awardable

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under § 285. In view of our decision in *Mathis v. Spears*, 857 F.2d 749, 758-59, 8 USPQ2d 1551, 1558-59 (Fed.Cir.1988), it is now clear that such fees are awardable. Therefore, on remand, the district court should take these fees and expenses into account in determining reasonable fees under § 285, subject, of course, to consideration of the other factors set forth in section III of this opinion.

CONCLUSION

The decision of the district court is *affirmed-in part, vacated-in part, and remanded.*

COSTS

Each party to bear its own costs.

AFFIRMED-IN-PART, VACATED-IN-PART, AND REMANDED

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(Cite as: 837 F.2d 1071)

C

United States Court of Appeals,
Federal Circuit.

In re David H. FINE

No. 87-1319.

Jan. 26, 1988.

The Board of Patent Appeals and Interferences of the United States Patent and Trademark Office affirmed rejection of claims of application for patent for system for detecting and measuring minute quantities of nitrogen compounds, and applicant appealed. The Court of Appeals, Mayer, Circuit Judge, held that: (1) it would not have been obvious to substitute nitric oxide detector for sulfur dioxide detector in prior system, and (2) sulfur detection system did not teach use of claimed temperature range.

Reversed.

Edward S. Smith, Circuit Judge, dissented and filed opinion.

West Headnotes

[1] Patents ⇐16.33
291k16.33 Most Cited Cases

System for detecting and measuring minute quantities of nitrogen compounds was not obvious in light of prior art for separating, identifying, and monitoring sulfur compounds or method for measuring chemiluminescence of reaction between nitric oxide and ozone which required continuous flowing of gaseous mixture into reaction chamber; method for measuring sulfur deliberately sought to avoid nitrogen compounds, and claimed invention retained each nitrogen compound constituent of gaseous sample in chromatograph for individual time period. 35 U.S.C.A. § 103.

[2] Patents ⇐114.19
291k114.19 Most Cited Cases

[2] Patents ⇐114.21
291k114.21 Most Cited Cases

Patent and Trademark Office has burden to establish prima facie case of obviousness, which it may satisfy only by showing some objective teaching in prior art, or that knowledge generally available to one of ordinary skill and art would lead that individual to combined relevant teachings of references. 35 U.S.C.A. § 103.

[3] Patents ⇐26(1)
291k26(1) Most Cited Cases

Whether particular combination might be "obvious to try" is not legitimate test of patentability. 35 U.S.C.A. § 103.

[4] Patents ⇐16.5(1)
291k16.5(1) Most Cited Cases
(Formerly 291k16.5)

Patent which described preferred temperature range for separating, identifying and quantitatively monitoring sulfur compounds could be distinguished from claimed method for detecting and measuring minute quantities of nitrogen compounds which limited temperature to prevent nitrogen from other sources, where purpose of temperature limitation in prior art was to avoid formation of unwanted sulfides.

Patents ⇐328(2)
291k328(2) Most Cited Cases

3,207,585, 3,650,696, 3,746,513. Cited as prior art.
***1072** Morris Relson, Darby & Darby, P.C., New York City, for appellant. With him on the brief was Beverly B. Goodwin.

Lee E. Barrett, Associate Sol., Office of the Solicitor, Arlington, Va., for appellee. With him on the brief were Joseph F. Nakamura, Sol. and Fred E. McKelvey, Deputy Sol.

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Before FRIEDMAN, SMITH and MAYER, Circuit Judges.

OPINION

MAYER, Circuit Judge.

David H. Fine appeals from a decision of the Board of Patent Appeals and Interferences of the United States Patent and Trademark Office (Board) affirming the rejection of certain claims of his application, Serial No. 512,374, and concluding that his invention would have been obvious to one of ordinary skill in the art and was therefore unpatentable under 35 U.S.C. § 103. We reverse.

BACKGROUND

A. The Invention.

The invention claimed is a system for detecting and measuring minute quantities of nitrogen compounds. According to Fine, the system has the ability to detect the presence of nitrogen compounds in quantities as minute as one part in one billion, and is an effective means to detect drugs and explosives, which emanate nitrogen compound vapors even when they are concealed in luggage and closed containers.

The claimed invention has three major components: (1) a gas chromatograph which separates a gaseous sample into its constituent parts; (2) a converter which converts the nitrogen compound effluent output of the chromatograph into nitric oxide in a hot, oxygen-rich environment; and (3) a detector for measuring the level of nitric oxide. The claimed invention's sensitivity is achieved by combining nitric oxide with ozone to produce nitrogen dioxide which concurrently causes a detectable luminescence. The luminescence, which is measured by a visual detector, shows the level of nitric oxide which in turn is a measure of nitrogen compounds found in the sample.

The appealed claims were rejected by the Patent and Trademark Office (PTO) under 35 U.S.C. § 103 . Claims 60, 63, 77 and 80 were rejected as unpatentable over Eads, Patent No. 3,650,696 (Eads) in view of Warnick, et al., Patent No. 3,746,513 (Warnick). Claims 62, 68, 69, 79, 85 and 86 were rejected as unpatentable over Eads and Warnick in view of Glass, et al., Patent No. 3,207,585 (Glass).

B. The Prior Art.

1. *Eads Patent.*

Eads discloses a method for separating, identifying and quantitatively monitoring ***1073** sulfur compounds. The Eads system is used primarily in "air pollution control work in the scientific characterization of odors from sulfur compounds."

The problem addressed by Eads is the tendency of sulfur compounds "to adhere to or react with the surface materials of the sampling and analytical equipment, and/or react with the liquid or gaseous materials in the equipment." Because of this, the accuracy of measurement is impaired. To solve the problem, the Eads system collects an air sample containing sulfur compounds in a sulfur-free methanol solution. The liquid is inserted into a gas chromatograph which separates the various sulfur compounds. The compounds are next sent through a pyrolysis furnace where they are oxidized to form sulfur dioxide. Finally, the sulfur dioxide passes through a measuring device called a microcoulometer which uses titration cells to calculate the concentration of sulfur compounds in the sample.

2. *Warnick Patent.*

Warnick is directed to a means for detecting the quantity of pollutants in the atmosphere. By measuring the chemiluminescence of the reaction between nitric oxide and ozone, the Warnick device can detect the concentration of nitric oxide in a sample gaseous mixture.

Warnick calls for "continuously flowing" a sample gaseous mixture and a reactant containing ozone into a reaction chamber. The chemiluminescence from the resulting reaction is transmitted through a light-transmitting element to produce continuous readouts of the total amount of nitric oxide present in the sample.

3. *Glass Patent.*

The invention disclosed in Glass is a device for "completely burning a measured amount of a

substance and analyzing the combustion products." A fixed amount of a liquid petroleum sample and oxygen are supplied to a flame. The flame is then spark-ignited, causing the sample to burn. The resulting combustion products are then collected and measured, and from this measurement the hydrogen concentration in the sample is computed.

C. The Rejection.

The Examiner rejected claims 60, 63, 77 and 80 because "substitution of the [nitric oxide] detector of Warnick for the sulfur detector of Eads would be an obvious consideration if interested in nitrogen compounds, and would yield the claimed invention." He further asserted that "Eads teaches the [claimed] combination of chromatograph, combustion, and detection, in that order.... Substitution of detectors to measure any component of interest is well within the skill of the art." In rejecting claims 62, 68, 69, 79, 85 and 86, the Examiner said, "Glass et al. teach a flame conversion means followed by a detector, and substitution of the flame conversion means of Glass et al. for the furnace of Eads would be an obvious equivalent and would yield the claimed invention." The Board affirmed the Examiner's rejection.

DISCUSSION

A. Standard of Review.

Obviousness under 35 U.S.C. § 103 is " 'a legal conclusion based on factual evidence.' " *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1535, 218 USPQ 871, 876 (Fed.Cir.1983) (quoting *Stevenson v. Int'l Trade Comm'n*, 612 F.2d 546, 549, 204 USPQ 276, 279 (CCPA 1979)). Therefore, an obviousness determination is not reviewed under the clearly erroneous standard applicable to fact findings, *Raytheon Co. v. Roper Corp.*, 724 F.2d 951, 956, 220 USPQ 592, 596 (Fed.Cir.1983); it is "reviewed for correctness or error as a matter of law." *In re De Blauwe*, 736 F.2d 699, 703, 222 USPQ 191, 195 (Fed.Cir.1984).

> To reach a proper conclusion under § 103, the decisionmaker must step backward in time and into the shoes worn by [a person having ordinary skill in the art] when the invention was unknown and just before it was made. In light of *all* the evidence, the decisionmaker must then determine whether ... the claimed invention as a whole would have been ***1074** obvious at *that* time to *that* person. 35 U.S.C. § 103. The answer to that question partakes more of the nature of law than of fact, for it is an ultimate conclusion based on a foundation formed of all the probative facts.

Panduit Corp. v. Dennison Mfg. Co., *810 F.2d 1561, 1566, 1 USPQ2d 1593, 1595-96 (Fed.Cir.1987)*.

B. Prima Facie Obviousness.

Fine says the PTO has not established a *prima facie* case of obviousness. He contends the references applied by the Board and Examiner were improperly combined, using hindsight reconstruction, without evidence to support the combination and in the face of contrary teachings in the prior art. He argues that the appealed claims were rejected because the PTO thought it would have been "obvious to try" the claimed invention, an unacceptable basis for rejection.

[1][2] We agree. The PTO has the burden under section 103 to establish a *prima facie* case of obviousness. *See In re Piasecki*, 745 F.2d 1468, 1471-72, 223 USPQ 785, 787-88 (Fed.Cir.1984). It can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. *In re Lalu*, 747 F.2d 703, 705, 223 USPQ 1257, 1258 (Fed.Cir.1984); *see also Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 297 n. 24, 227 USPQ 657, 667 n. 24 (Fed.Cir.1985); *ACS Hosp. Sys., Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed.Cir.1984). This it has not done. The Board points to nothing in the cited references, either alone or in combination, suggesting or teaching Fine's invention.

The primary basis for the Board's affirmance of the Examiner's rejection was that it would have been obvious to substitute the Warnick nitric oxide detector for the Eads sulfur dioxide detector in the Eads system. The Board reiterated the Examiner's bald assertion that "substitution of one type of detector for another in the system of Eads would have been within the skill of the art," but neither of them offered any support for or explanation of this conclusion.

Eads is limited to the analysis of sulfur compounds.

The particular problem addressed there is the difficulty of obtaining precise measurements of sulfur compounds because of the tendency of sulfur dioxide to adhere to or react with the sampling analytic equipment or the liquid or gaseous materials in the equipment. It solves this problem by suggesting that the gaseous sample containing sulfur compounds be absorbed into sulfur-free methanol and then inserted into a gas chromatograph to separate the sulfur compounds.

There is no suggestion in Eads, which focuses on the unique difficulties inherent in the measurement of sulfur, to use that arrangement to detect nitrogen compounds. In fact, Eads says that the presence of nitrogen is undesirable because the concentration of the titration cell components in the sulfur detector is adversely affected by substantial amounts of nitrogen compounds in the sample. So, instead of suggesting that the system be used to detect nitrogen compounds, Eads deliberately seeks to avoid them; it warns against rather than teaches Fine's invention. *See W.L. Gore & Assoc. v. Garlock, Inc.,* 721 F.2d 1540, 1550, 220 USPQ 303, 311 (Fed.Cir.1983) (error to find obviousness where references "diverge from and teach away from the invention at hand"). In the face of this, one skilled in the art would not be expected to combine a nitrogen-related detector with the Eads system. Accordingly, there is no suggestion to combine Eads and Warnick.

Likewise, the teachings of Warnick are inconsistent with the claimed invention, to some extent. The Warnick claims are directed to a gas stream from engine exhaust "continuously flowing the gaseous mixtures into the reaction chamber" to obtain "continuous readouts" of the amount of nitric oxide in the sample. In other words, it contemplates measuring the total amount of nitric oxide in a continuously flowing gaseous mixture of unseparated nitrogen constituents. By contrast, in Fine each ***1075** nitrogen compound constituent of the gaseous sample is retained in the chromatograph for an individual time period so that each exits in discrete, time-separated pulses. [FN*] By this process, each constituent may be both identified by its position in time sequence, and measured. The claimed system, therefore, diverges from Warnick and teaches advantages not appreciated or contemplated by it.

FN* The Solicitor argues that the contents of Attachment C of Fine's brief were not before the Board and may not properly be considered here. However, we need not rely on Attachment C. It is merely illustrative of the qualitative separation of nitrogen compounds which occurs in Fine's system. The fact that the various constituents exit at discrete intervals is shown by the specification which was before the Board and which may appropriately be considered on appeal. *See, e.g., Astra-Sjuco, A.B. v. United States Int'l Trade Comm'n,* 629 F.2d 682, 686, 207 USPQ 1, 5 (CCPA 1980) (claims must be construed in light of specification).

[3] Because neither Warnick nor Eads, alone or in combination, suggests the claimed invention, the Board erred in affirming the Examiner's conclusion that it would have been obvious to substitute the Warnick nitric oxide detector for the Eads sulfur dioxide detector in the Eads system. *ACS Hosp. Sys.,* 732 F.2d at 1575-77, 221 USPQ at 931-33. The Eads and Warnick references disclose, at most, that one skilled in the art might find it obvious to try the claimed invention. But whether a particular combination might be "obvious to try" is not a legitimate test of patentability. *In re Geiger,* 815 F.2d 686, 688, 2 USPQ2d 1276, 1278 (Fed.Cir.1987); *In re Goodwin,* 576 F.2d 375, 377, 198 USPQ 1, 3 (CCPA 1978).

Obviousness is tested by "what the combined teachings of the references would have suggested to those of ordinary skill in the art." *In re Keller,* 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). But it "cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination." *ACS Hosp. Sys.,* 732 F.2d at 1577, 221 USPQ at 933. And "teachings of references can be combined *only* if there is some suggestion or incentive to do so." *Id.* Here, the prior art contains none.

Instead, the Examiner relies on hindsight in reaching his obviousness determination. But this court has said, "To imbue one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or references of record

convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher." *W.L. Gore,* 721 F.2d at 1553, 220 USPQ at 312-13. It is essential that "the decisionmaker forget what he or she has been taught at trial about the claimed invention and cast the mind back to the time the invention was made ... to occupy the mind of one skilled in the art who is presented only with the references, and who is normally guided by the then-accepted wisdom in the art." *Id.* One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.

C. Advantage Not Appreciated by the Prior Art.

[4] The Board erred not only in improperly combining the Eads and Warnick references but also in failing to appreciate that the appealed claims can be distinguished over that combination. A material limitation of the claimed system is that the conversion to nitric oxide occur in the range of 600°> C to 1700° C. The purpose of this limitation is to prevent nitrogen from other sources, such as the air, from being converted to nitric oxide and thereby distorting the measurement of nitric oxide derived from the nitrogen compounds of the sample.

The claimed nitric oxide conversion temperature is not disclosed in Warnick. Although Eads describes a preferred temperature of 675° C to 725°> C, the purpose of this range is different from that of Fine. Eads requires the 675° C to 725° C range because it affords a temperature low enough to avoid formation of unwanted sulfur trioxide, yet high enough to avoid formation of unwanted sulfides. Fine's temperature ***1076** range, in contrast, does not seek to avoid the formation of sulfur compounds or even nitrogen compounds. It enables the system to break down the nitrogen compounds of the sample while avoiding the destruction of background nitrogen gas. There is a partial overlap, of course, but this is mere happenstance. Because the purposes of the two temperature ranges are entirely unrelated, Eads does not teach use of the claimed range. *See In re Geiger,* 815 F.2d at 688, 2 USPQ2d at 1278. The Board erred by concluding otherwise.

D. Unexpected Results.

Because we reverse for failure to establish a *prima facie* case of obviousness, we need not reach Fine's contention that the Board failed to accord proper weight to the objective evidence of unexpected superior results. *Id.*

E. The "Flame" Claims.

Claims 62, 68, 69, 79, 85 and 86 relate to the oxygen-rich flame conversion means of the claimed invention. These "flame" claims depend from either apparatus claim 60 or method claim 77. Dependent claims are nonobvious under section 103 if the independent claims from which they depend are nonobvious. *Hartness Int'l, Inc. v. Simplimatic Eng'g Co.,* 819 F.2d 1100, 1108, 2 USPQ2d 1826, 1831 (Fed.Cir.1987); *In re Abele,* 684 F.2d 902, 910, 214 USPQ 682, 689 (CCPA 1982); *see also In re Sernaker,* 702 F.2d 989, 991, 217 USPQ 1, 3 (Fed.Cir.1983). In view of our conclusion that claims 60 and 77 are nonobvious, the dependent "flame" claims are also patentable.

CONCLUSION

The Board's decision affirming the Examiner's rejection of claims 60, 62, 63, 68, 69, 77, 79, 80, 85 and 86 of Fine's application as unpatentable over the prior art under 35 U.S.C. § 103 is

REVERSED.

EDWARD S. SMITH, Circuit Judge, dissenting.

I respectfully dissent. I am of the firm belief that the prior art references, relied upon by the PTO to establish its prima facie case of obviousness, in combination teach and suggest Fine's invention to one skilled in the art. Also, I firmly believe that Fine failed to rebut the PTO's prima facie case. On this basis, I would affirm the board's determination sustaining the examiner's rejection, pursuant to 35 U.S.C. § 103, of Fine's claims on appeal before this court.

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(Cite as: 58 C.C.P.A. 1310, 443 F.2d 1392)

C

United States Court of Customs and Patent Appeals.

Application of Gerald McLAUGHLIN.

Patent Appeal No. 8474.

June 24, 1971.

Patent applicant appealed from a decision of Patent Office Board of Appeals, Serial No. 566,701, sustaining rejection o three claims in application and allowing one claim. The Court of Customs and Patent Appeals, Baldwin, J., held that applicant's secondary evidence was adequate to rebut initial inference of obviousness with respect to claim 15 of application for patent relating to an improved construction arrangement for railroad boxcars which are adapted for carrying unitized cargo, requiring reversal of decision of Patent Office Board of Appeals with respect to that claim which it held unpatentable in view of the prior art, but as to claims 13 and 14 of application the prima facie case of obviousness made out by prior arts stood unrebutted and the Board's rejection of such claims must be sustained.

Decision affirmed as to claims 13 and 14 and reversed as to claim 15. □

West Headnotes

[1] Patents ⇐51(1)
291k51(1) Most Cited Cases

Test for combining references is not what individual references themselves suggest but rather what combination of disclosures taken as a whole would suggest to one of ordinary skill in the art.

[2] Patents ⇐16(4)
291k16(4) Most Cited Cases
(Formerly 291k18)

While any judgment on obviousness is in sense necessarily a reconstruction based on hindsight reasoning, so long as judgment takes into account only knowledge which was within the level of ordinary skill at time claimed i vention was made and does not include knowledge gleaned only from applicant's disclosure, such reconstruction is proper.

[3] Patents ⇐36(1)
291k36(1) Most Cited Cases
(Formerly 291k36(2))

[3] Patents ⇐36.2(1)
291k36.2(1) Most Cited Cases
(Formerly 291k36(1))

Inference of obviousness drawn from prior art disclosures is only prima facie justification for drawing ultimate legal conclusion that claimed invention is unpatentable, and it is imperative that such secondary consideration as commercial success be evaluated in determining final validity of conclusion even when claimed invention involves only a relatively simple mechanical concept. 35 U.S.C.A. § 103.

[4] Patents ⇐32
291k32 Most Cited Cases

Applicant's secondary evidence was adequate to rebut initial inference of obviousness with respect to claim 15 of application for patent relating to an improved construction arrangement for railroad boxcars which are adapted for carrying unitized cargo, requiring reversal of decision of Patent Office Board of Appeals with respect to that claim which it held unpatentable in view of the prior art, but as to claims 13 and 14 of application the prima facie case of obviousness made out by prior arts stood unrebutted and the Board's rejection of such claims must be sustained.

Patents ⇐328(2)
291k328(2) Most Cited Cases

3,217,664, 3,212,458, 3,163,130, 2,930,332. Cited.
****1393 *1310** Norman Lettvin, Chicago, Ill., attorney of record, for appellant.

S. Wm. Cochran, Washington, D.C., for the Commissioner of Patents; R. V. Lupo, Washington, D.C., of counsel.

Before RICH, ALMOND, BALDWIN and LANE, Judges, and RE, Judge, United States Customs Court, sitting by designation.

BALDWIN, Judge.

McLaughlin has appealed from the decision of the Patent Office Board of Appeals sustaining the rejection of claims 13, 14 and 15 in his application [FN1] as unpatentable under 35 U.S.C. § 103 in view of the prior art. One claim has been held allowable.

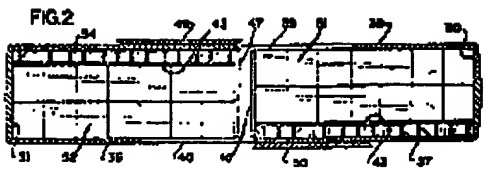
> FN1. Serial No. 566,701, filed July 5, 1966, for 'Compartment Arrangement for Railway Cars.'

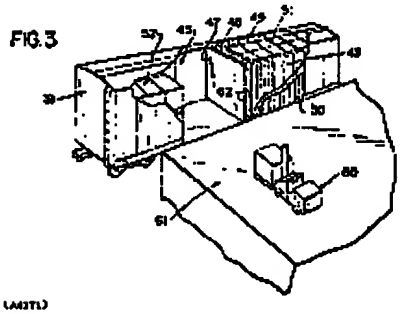
THE INVENTION

The subject matter of the claims on appeal may be characterized as an improved construction arrangement for railroad 'boxcars' which ***1311** are adapted for carrying 'unitized' cargo. The latter term is defined by appellant as 'cargo that is loaded upon a cargo-handling platform (such as a pallet or slip sheet) of a pre-selected size, and which is arranged for transfer between stations by devices such as fork-lift trucks.' □

Appellant states that prior art arrangements, having the doorways located substantially centrally in the opposed sidewalls, leave the center of the car unsuitable for holding additional pallets securely because side filler panels cannot be placed over the doorways without inconveniencing loading and unloading.

The present invention, as represented in Figure 2 of the application, which we reproduce below along with Figure 3, is alleged to permit a larger volume of freight to be conveniently loaded in a car with the same overall dimensions.





The car used in this arrangement has the door openings 39 (left hand occurrence and 40 in the opposite sidewalls offset longitudinally so that each sidewall includes a long wall section and a short wall section on opposite sides of the opening. Side filler panels 43 and 45 are affixed to the interiors of the ****1394** long wall sections 37 and 34, respectively, and longitudinally adjustable bulkheads 47 and 48 are provided. ***1312** The car is shown completely filled with groups of palletized containers 51 and 52, secured in position by the side filler panels and bulkheads. The application describes the loading of this car as follows:

Typically, the load dividers 47 and 48 are initially moved to the left of doorway 40 to permit free access to the floor surface area in the 'deep end' of the car bounded by end wall 30. The pallets 51 are placed into the car in sequence, adjusting the side fillers to the necess ry width required to firmly confine the pallets in place. During this time, door 49 is already closed to form the lateral support for the six pallet stacks 51 nearest load divider 48. The load divided 48 is then moved into position against the stacked pallets 51 and locked in place. The second load divider 47 is then temporarily positioned closely adjacent load divider 48 to permit free access to the 'short end' of the car terminated by end wall 31. Pallets 52 are then sequentially placed in position, adjusting the side fillers 45 to retain these pallets against lateral shifting. The three side fillers in the series 45 which are closest to the load divider 47 are preadjusted prior to loading the six pallet stacks 52 nearest load

divider 47. Finally, load divider 47 is moved into tight engagement with the stacked pallets 52, locked in place, and the door 50 is closed to secure the pallets 52.

The only independent claim on appeal is claim 13 which we reproduce as follows:

13. An improved car-loading construction for use in elongated, wallenclosed railway cars of the type utilizing therein longitudinally movable load-confining transverse bulkheads which are adapted to be located generally centrally of the ends of the car to project across substantially the entire width of the car;

said improved car-loading construction comprising, in combination,

the longitudinal side walls of the car each having a single doorway therein located between the ends of the wall to divide the wall into spaced long and short sections,

the doorways being offset toward different ends of the car so that the major portion of each doorway is directly opposite the long wall section of the opposing side wall, and

side filling panels mounted on the inside surface of each of said long wall sections and being adjustable toward and away from the corresponding long wall section, so that the transversely adjustable side filling panels on one long wall section and a longitudinally adjustable tra sverse bulkhead may cooperate to substantially fully enclose the load in one end of the car substantially to the mid-point of the car without adversely affecting the ability to load the other end of the car.

Claim 14 adds the additional limitations that the car is adapted to carry palletmounted loads and the lengths of the side walls of the car conform substantially to whole multiples of a dimension of a pallet. Claim 15 further provides that the portion of each doorway directly opposite a wall is 'substantially equal to a plural multiple of a dimension of the pallet' and that the rest of the doorway is narrower than a pallet dimension.

*1313 THE REJECTION

Claims 13, 14 and 15 were rejected as unpatentable over Cook [FN2] in view of either Robertson [FN3] and Aquino [FN4] or of Lundvall, [FN5] under 35 U.S.C. § 103.

FN2. Patent No. 2,930,332, granted March 29, 1960.

FN3. Patent No. 3,212,458, granted October 19, 1965.

FN4. Patent No. 3,217,664, granted November 16, 1965.

FN5. Patent No. 3,163,130, granted December 29, 1964.

Cook discloses a railway boxcar having sides defining oversized door openings **1395 in diagonally opposite ends of the car. That construction is described as facilitating loading and unloading lumber, permitting it to be palletized and to be handled by lift trucks.

Lundvall discloses a railway car provided with adjustable side filler panels for preventing lateral shifting of the load and adjustable bulkheads to hold the load against longitudinal shifting.

Robertson discloses a specific side filler panel construction for railway cars and Aquino is directed to a bulkhead construction for similar use.

The examiner and board based their holdings that the appealed claims are unpatentable on the view that persons of ordinary skill in the art would find it obvious to use bulkheads and side filler panels, as disclosed in the secondary references, in connection with loads placed in a car of the Cook construction.

OPINION

Appellant has strenuously urged that the reference disclosures were improperly combined. In particular, with regard to Cook, he argues that, while the reference does show elongated, longitudinally offset doors, it does not suggest such

an arrangement in combination with a bulkhead and side fillers because of the patentee's expressed desire to have a car capable of being loaded and unloaded simultaneously from both sides, which is not the desire of appellant nor even possible, he urges, with his arrangement.

[1][2] We have taken the above argument into consideration and do find that it has some merit. Nevertheless, it is not convincing. It should be too well settled now to require citation or discussion that the test for combining references is not what the individual references themselves suggest but rather what the combination of disclosures taken as a whole would suggest to one of ordinary skill in the art. Any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning, but so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made and does not include knowledge ***1314** gleaned only from applicant's disclosure, such a reconstruction is proper. The Cook patent does indicate that the car shown therein is suitable for carrying palletized loads with lift trucks being used for the loading and unloading, including stacking of the pallets. Since the secondary references show that it was well known to use side filler panels and bulkheads to confine palletized loads to prevent lateral and longitudinal shifting, we agree that those references would have suggested use of such panels and bulkheads with the Cook car for the same purpose.

[3] The foregoing conclusion in itself, however, is not determinative of the present appeal. Appellant has submitted evidence tending to prove that his invention has solved the longstanding problem of utilizing the maximum amount of space in standard, 50-ft. boxcars, permitting loading the car with 56 pallets of 48' X 40', whereas prior to the invention, cars of that size could be loaded with only 46 such pallets properly confined. The evidence, comprising two affidavits and a series of exhibits, indicates that the invention has been commercially successful and that its concept was promptly adapted by a competitor. Recognizing that the inference of obviousness drawn from the prior art disclosures is only prima facie justification for drawing the ultimate legal conclusion that the claimed invention is unpatentable under 35 U.S.C. § 103, it is mperative that such secondary considerations also be evaluated in determining the final validity of that legal conclusion. Graham v. John Deere Co., 383 U.S. 1, 86 S.Ct. 684, 15 L.Ed.2d 545 (1966). We emphasize that such is true even where, as here, the claimed invention involves only relatively simple mechanical concepts. As we have said on another occasion: 'A patentable invention, ****1396** within the ambit of 35 U.S.C. § 103, may result even if the inventor has, in effect, merely combined features, old in the art, for their known purpose, without producing anything beyond the results inherent in their use.' In re Sponnoble, 56 CCPA 823, 405 F.2d 578, 56 CCPA 823 (1969).

The first affidavit was by appellant, himself, the manager of the C stomer Relations Department of the Equipco division of Unarco Industries, Inc., the assignee of the application. He asserts that 355 railway cars equipped for use with his invention, valued at nearly eight million dollars, were ordered within little more than a year. Included with this affidavit are a series of reproductions of trade journal articles and advertisements tending to support the further assertion made in the affidavit, that the problem of effectively utilizing space was a familiar one. One exhibit is a copy of the advertisement of a competitor, tending to indicate that appellant's concept was adopted by that competitor. The other affidavit is by John Clement, general ***1315** traffic manager with the Corn Products Co. and apparently a disinterested third party. The affiant states that he has the duty of obtaining all the railroad and other types f cargo equipment necessary for shipping the company's products and that he became interested in the invention immediately upon its being disclosed to him because it appeared to solve problems presented by prior railway car arrangements, allowing use of substantially the entire cargo carrying capacity of the car while permitting truck loading. The affidavit further states that Corn Products had already received 10 cars possessing the proposed arrangement, had ordered 11 more and was negotiating for an additional forty.

The examiner did not consider the affidavits persuasive. That of Clement he characterized as alleging that appellant's arrangement is more versatile than prior arrangements without advancing any factual support. He regarded appellant's own affidavit as lacking sufficient facts to show that the asserted commercial success resulted from the invention as claimed. The board did not comment

443 F.2d 1392
170 U.S.P.Q. 209
(Cite as: 58 C.C.P.A. 1310, 443 F.2d 1392)

on either affidavit in its opinion.

[4] Our own consideration of the affidavits in light of appellant's arguments convinces us that there was a problem in the art due to floor space in the mid-section of cars with side doorways not ordinarily being usable for palleted goods which require securing against transverse and lateral shifting. Moreover, the favorable opinion Clement expressed of the invention and the showing of extensive purchases of equipment for utilizing it indicate that appellant provided an unobvious solution of the problem. The affidavits reveal the solution as involving the arrangement substantially as described in applicant's application. Thus an arrangement is required wherein the relationship of the dime sions of the long and short wall sections and the door openings of the car are such that the pallets may be machine-loaded substantially to its full capacity. We note that these features are brought out fully only in claim 15 which recites that the long and short sections of the side walls are substantially equal to whole multiples of a dimension of a pallet and that the portions of the doorway directly opposite each other have a width equal to a plural multiple of a dimension of a pallet. As to that claim, we find appellant's secondary evidence adequate to rebut the initial inference of obviousness and, accordingly, reverse the decision of the board.

On the other hand, the affidavit showings do not demonstrate that an arrangement lacking any of the characteristics defined in claim 15 solved the previous space-utilization problem or that the commercial ***1316** success was due to less than all of those features. As to claims 13 and 14, thus, the prima facie case of obviousness made out by the prior art stands unrebutted and the board's decision ****1397** pertaining thereto must be sustained.

The decision of the board is affirmed as to claims 13 and 14 and reversed as to claim 15.

***1310** Modified.

443 F.2d 1392, 58 C.C.P.A. 1310, 170 U.S.P.Q. 209

END OF DOCUMENT

721 F.2d 1540
220 U.S.P.Q. 303
(Cite as: 721 F.2d 1540)

Briefs and Other Related Documents

United States Court of Appeals,
Federal Circuit.

W.L. GORE & ASSOCIATES, INC.,
Appellant/Cross-Appellee,
v.
GARLOCK, INC., Appellee/Cross-Appellant.

Nos. 83-613, 83-614.

Nov. 14, 1983.

Patentee brought infringement action, and accused infringer counterclaimed for declaratory judgment of patent invalidity, noninfringement, fraudulent solicitation, and entitlement to attorney fees. The United States District Court for the Northern District of Ohio entered judgment holding patents invalid, and patentee appealed. The Court of Appeals, Markey, Chief Judge, held that: (1) claims 1 and 17 of patent No. 3,953,566 directed to processes for stretching highly crystalline, unsintered teflon were invalid; (2) accused infringer had not met burden of showing that claims 1, 9, 12, 14, 18, 35, 36, 43, 67, and 77 of patent No. 4,187,390 directed to products obtained by the processes of the companion patent had been anticipated by prior art; (3) accused infringer failed to prove that at time application was filed, specification was not enabling or that claims were indefinite; (4) accused infringer failed to sustain burden of proving, by clear and convincing evidence, sufficient facts from which fraudulent intent could be inferred; (5) District Court did not abuse its discretion in denying accused infringer's request for attorney fees; and (6) better practice was for District Court to decide both validity and infringement issues.

Affirmed in part, reversed in part, and remanded.

Davis, Circuit Judge, concurred in result in part and dissented in part and filed opinion.

West Headnotes

[1] Patents ☐165(2)
291k165(2) Most Cited Cases

It is the patent claims that measure or define the invention, for purpose of determining patent validity. 35 U.S.C.A. § 112.

[2] Patents ☐16(1)
291k16(1) Most Cited Cases

Each claimed invention must be considered as a whole in determining validity of patent. 35 U.S.C.A. § 103.

[3] Patents ☐16(1)
291k16(1) Most Cited Cases

Court's restriction of claimed multistep process to one step constitutes error, whether done at behest of patentee relying on restriction to establish infringement by one who employs only that one step in a process otherwise distinct, or at behest of an accused infringer relying on that restriction to establish invalidity by showing that one step in a prior art process otherwise distinct. 35 U.S.C.A. §§ 102, 102(a, b), 103.

[4] Patents ☐62(1)
291k62(1) Most Cited Cases

Finding that limitations of claim of patent directed to processes for stretching highly crystalline, unsintered teflon were met by patentee's operation, before asserted date of his invention, of teflon tape-stretching machine previously invented and patented by patentee's father was supported by record, for purpose of determining whether claim of patent was anticipated by operation of machine. 35 U.S.C.A. § 102(a).

[5] Patents ☐324.55(2)
291k324.55(2) Most Cited Cases

Fact that district court, bound by precedent at time of trial, applied preponderance of the evidence test in determining claim of patent to have been anticipated by prior art did not render clearly erroneous standard inapplicable on patentee's appeal. 35 U.S.C.A. § 102(a); Fed.Rules Civ.Proc.Rule 52(a), 28 U.S.C.A.

[6] Patents ☐51(1)
291k51(1) Most Cited Cases

Fact that those using patentee's invention for stretching teflon may not have appreciated results was irrelevant to determination of whether claim of patent was anticipated by operation of patented teflon tape-stretching machine in patentee's shop before asserted date of patentee's invention. 35 U.S.C.A. § 102(a).

[7] Patents ☐51(2)
291k51(2) Most Cited Cases

Nonsecret use of a claimed process in the usual course of producing articles for commercial purposes is a public use. 35 U.S.C.A. § 102(a).

[8] Patents ☐75
291k75 Most Cited Cases

Manufacturer's use of previously invented machine for producing stretched and unstretched teflon thread seal tape was not a "public use" of processes subsequently claimed in patent directed to processes for stretching highly crystalline, unsintered teflon, notwithstanding that manufacturer allegedly did not keep machine hidden from employees legally bound to keep their knowledge confidential and notwithstanding that another company's employees were shown machine to see if they could help increase its speed, where there was no evidence that viewer of machine could thereby learn anything of which process, among all possible processes, the machine used. 35 U.S.C.A. §§ 102(b), 282.

[9] Patents ☐80
291k80 Most Cited Cases

Manufacturer's and inventor's secret commercialization of whatever process was used in inventor's machine for producing stretched and unstretched teflon thread seal tape could not be held a bar to grant of patent to patentee on that process where, if manufacturer offered and sold anything, it was only tape and not whatever process was used in producing it, and there was no evidence that public could learn claimed process by examining tape. 35 U.S.C.A. § 102(b).

[10] Patents ☐90(2)
291k90(2) Most Cited Cases

As between a prior inventor who benefits from process by selling its product but suppresses, conceals, or otherwise keeps process from public, and later inventor who promptly files patent application from which public will gain disclosure of process, law favors the latter. 35 U.S.C.A. § 102(b).

[11] Patents ☐16.5(3)
291k16.5(3) Most Cited Cases
(Formerly 291k16.8)

Failure, in review of prior art with respect to patent directed to processes for stretching highly crystalline, unsintered teflon, to take into account import of markedly different behavior of such teflon from that of conventional thermoplastic polymers, consideration of patent claims in less than their entireties, and disregard of disclosures in prior art references that diverged from and taught away from invention at hand were error. 35 U.S.C.A. § 103.

[12] Patents ☐16.25
291k16.25 Most Cited Cases

Disclosure in prior patents that unsintered teflon article could be stretched to as much as four times its length encompassed step of stretching to twice its length set forth in claim 17 of patent No. 3,953,566 directed to processes for stretching highly crystalline, unsintered teflon and established that such step would have been obvious, and thus claim was invalid. 35 U.S.C.A. § 103.

[13] Patents ☐112.1
291k112.1 Most Cited Cases

Presumption of validity of patent has no separate evidentiary value; it cautions decision maker against rush to conclude invalidity, and submission of additional art that is merely "pertinent" does not dispel that caution. 35 U.S.C.A. § 103.

[14] Patents 312(1.2)
291k312(1.2) Most Cited Cases
(Formerly 291k312(1.8), 291k312(1), 291k312, 291k312(.8))

Burden of persuasion remains throughout trial on one who would prove invalidity of patent. 35 U.S.C.A. §§ 103, 282.

[15] Patents 36.1(1)
291k36.1(1) Most Cited Cases

Refusal to consider objective evidence of nonobviousness of processes taught by patent was error. 35 U.S.C.A. § 103.

[16] Patents 312(6)
291k312(6) Most Cited Cases

Accused infringer failed to meet burden of proving that invention which was subject of claims of patent directed to processes for stretching highly crystalline, unsintered teflon and teaching that such teflon could be stretched at a rate of about 100% per second or to more than five times its original length would have been obvious, even though individual parts of separate prior art references could be employed to recreate facsimile of claimed invention. 35 U.S.C.A. § 103.

[17] Patents 51(1)
291k51(1) Most Cited Cases

Anticipation requires disclosure in a single prior art reference of each element of claim under consideration. 35 U.S.C.A. § 102.

[18] Patents 51(1)
291k51(1) Most Cited Cases

Anticipation of inventions set forth in product claims cannot be predicated on mere conjecture respecting characteristics of products that might result from practice of processes disclosed in references. 35 U.S.C.A. § 102.

[19] Patents 66(1.24)
291k66(1.24) Most Cited Cases
General.

Teachings of prior art references were so unacceptably vague concerning characteristics of products produced by their respective processes as not to support anticipation rejection of claims of patent directed to products obtained by companion processes for stretching highly crystalline, unsintered teflon where neither of prior art references disclosed an invention set forth in any claim of subject patent, no inter partes tests in which processes taught by prior art references were conducted were of record, no products of those processes were placed in evidence, and "effect" of processes disclosed in prior art references was undisclosed in those patents. 35 U.S.C.A. § 102.

[20] Patents 66(1.24)
291k66(1.24) Most Cited Cases

Accused infringer's employment of process covered by patent cited as prior art reference was irrelevant to determination of anticipation of claims of patent directed to products obtained by companion processes for stretching highly crystalline, unsintered teflon, even assuming cited patent was a dominating patent, where there was no basis for finding that cited process in itself necessarily and inherently resulted in products which were subject of claims of patent. 35 U.S.C.A. § 102.

[21] Patents 66(1.24)
291k66(1.24) Most Cited Cases

Accused infringer's employment of process of dominating patent does not render that employment an anticipation of an invention described and claimed in an improvement patent. 35 U.S.C.A. § 102.

[22] Patents 62(1)
291k62(1) Most Cited Cases

Accused infringer had not met burden of showing that claims of patent directed to products obtained by companion processes for stretching highly crystalline, unsintered teflon were anticipated by prior art preferences, neither of which disclosed an invention set forth in any claim of patent. 35 U.S.C.A. § 102.

[23] Patents 16(2)
291k16(2) Most Cited Cases

Apparent assumption that products which were subject of patent claims, having been found inherent

in processes of prior art references, would have been obvious in view of those references was error. 35 U.S.C.A. § 103.

[24] Patents ☐16(1)
291k16(1) Most Cited Cases

Inherency and obviousness are distinct concepts for patent purposes. 35 U.S.C.A. § 103.

[25] Patents ☐36(1)
291k36(1) Most Cited Cases

All evidence bearing on issue of obviousness, as with any other issue raised in conduct of judicial process, must be considered and evaluated before required legal conclusion is reached. 35 U.S.C.A. § 103.

[26] Patents ☐36(1)
291k36(1) Most Cited Cases

Objective evidence of nonobviousness may in a given case be entitled to more weight or less, depending on its nature and its relationship to merits of invention, and it should when present always be considered as an integral part of analysis on obvious/nonobvious issue. 35 U.S.C.A. § 103.

[27] Patents ☐101(5)
291k101(5) Most Cited Cases

A claim to a new product is not legally required to include critical limitations. 35 U.S.C.A. § 103.

[28] Patents ☐16.25
291k16.25 Most Cited Cases
(Formerly 291k25)

In view of difficulty of working with unsintered teflon and its unpredictable response to various processing techniques, vagueness of prior art references concerning products produced by those processes, and filling of at least two long-felt needs by and commercial success of claimed inventions, inventions set forth in claims of patent directed to products obtained by companion processes for stretching highly crystalline, unsintered teflon would not have been obvious to those skilled in art at time those inventions were made. 35 U.S.C.A. § 103.

[29] Patents ☐1
291k1 Most Cited Cases

Patents are written to enable those skilled in the art, not the public, to practice the invention. 35 U.S.C.A. § 112.

[30] Patents ☐99
291k99 Most Cited Cases

Statute requiring that patents disclose sufficient information to enable a person of ordinary skill in the art to make and use the invention speaks as of the application filing date, not as of the time of trial. 35 U.S.C.A. § 112.

[31] Patents ☐99
291k99 Most Cited Cases

Postfiling date development of varying formulae for calculating stretch rate of unsintered teflon was irrelevant to determination of whether patents directed to processes for stretching highly crystalline, unsintered teflon and products obtained by such processes disclosed sufficient information to enable person of ordinary skill in art to make and use invention, as required by statute. 35 U.S.C.A. § 112.

[32] Patents ☐99
291k99 Most Cited Cases

Statute requiring that patents disclose sufficient information to enable person of ordinary skill in art to make and use invention requires that inventor set forth best mode of practicing invention known to him at time application was filed. 35 U.S.C.A. § 112.

[33] Patents ☐101(6)
291k101(6) Most Cited Cases

Use of phrase "stretching * * * at a rate exceeding about ten percent per second" in claims of patent directed to processes for stretching highly crystalline, unsintered teflon was not indefinite, for purpose of assessment of infringement, where infringement was assessable through use of stopwatch. 35 U.S.C.A. § 112.

[34] Patents ☐101(4)
291k101(4) Most Cited Cases

Absence from specification of patent directed to processes for stretching highly crystalline, unsintered teflon of a method for calculating minimum rate of stretch above 35 degrees centigrade did not render specification nonenabling, notwithstanding that minimum rate of stretch might increase with temperature, where calculation of minimum stretch rate above 35 degrees centigrade was not in claims of patent and particularly in absence of convincing evidence that those skilled in art would have found specification nonenabling at time application was filed. 35 U.S.C.A. § 112.

[35] Patents ☐99
291k99 Most Cited Cases

It is the claimed invention for which enablement is required. 35 U.S.C.A. § 112.

[36] Patents ☐101(11)
291k101(11) Most Cited Cases

Patents directed to processes for stretching highly crystalline, unsintered teflon and to products obtained by such processes were not invalid for indefiniteness on ground that some trial and error would be needed to determine lower limits of stretch rate above ten percent per second at various temperatures above 35 degrees centigrade where there was no evidence or finding that undue experimentation was required. 35 U.S.C.A. § 112.

[37] Patents ☐99
291k99 Most Cited Cases

A patent is not invalid because of need for experimentation. 35 U.S.C.A. § 112.

[38] Patents ☐99
291k99 Most Cited Cases

A patent is invalid only when those skilled in art are required to engage in undue experimentation to practice the invention. 35 U.S.C.A. § 112.

[39] Patents ☐165(1)
291k165(1) Most Cited Cases

Distinguishing what infringes from what doesn't is role of patent claims, not of patent specification. 35 U.S.C.A. § 112.

[40] Patents ☐98
291k98 Most Cited Cases

A patent applicant may be his own lexicographer.

[41] Patents ☐101(11)
291k101(11) Most Cited Cases

In light of disclosure of its calculation in patent specification, term "matrix tensile strength" in claims of patents directed to processes for stretching highly crystalline, unsintered teflon and to products obtained by such processes was neither indefinite nor nonenabling. 35 U.S.C.A. § 112.

[42] Patents ☐101(11)
291k101(11) Most Cited Cases

Absence from specification of patents directed to processes for stretching highly crystalline unsintered teflon and to products obtained by such processes of a definition for "specific gravity of the solid polymer," which was a part of computation of matrix tensile strength, did not render that computation indefinite where there was no testimony that specific gravity values used in application were not known to persons of ordinary skill in art or could not be calculated or measured. 35 U.S.C.A. § 112.

[43] Patents ☐312(4)
291k312(4) Most Cited Cases

Fraud on the Patent and Trademark Office must be shown by clear and convincing evidence.

[44] Patents ☐312(6)
291k312(6) Most Cited Cases

Accused infringer failed to sustain burden of proving, by clear and convincing evidence, sufficient facts from which fraudulent intent could be inferred from patentee's representations to Patent and Trademark Office that stretching unsintered teflon tape at rate greater than ten percent per second was not novel and that it produced a physical phenomenon.

[45] Patents ☐312(6)
291k312(6) Most Cited Cases

Finding in 1982 that teflon tape-stretching machine

invented and patented by patentee's father inherently stretched tape at some time in 1969 at a rate more than ten percent per second did not establish that patentee of patents directed to processes for stretching highly crystalline, unsintered teflon and to products obtained by such processes was aware of that fact in 1975, nor make untrue his statement that to his knowledge such had not been the rate of stretch employed, for purpose of determining fraud on the Patent and Trademark Office.

[46] Patents ☐312(6)
291k312(6) Most Cited Cases

Evidence of patentee's isolated statements did not support the conclusion, for purpose of determining fraud on the Patent and Trademark Office, that patentee of patents directed to processes for stretching highly crystalline, unsintered teflon and to products obtained by such processes attempted to convince PTO that a physical phenomenon always existed in which stretching at a rate greater than ten percent per second always produced a matrix tensile strength greater than 7,300 pounds per square inch.

[47] Patents ☐325.11(3)
291k325.11(3) Most Cited Cases

Denial of accused infringer's request for attorney fees on counterclaim for declaratory judgment of patent invalidity in patentee's infringement action was not abuse of discretion.

[48] Patents ☐324.60
291k324.60 Most Cited Cases

Where appellate court reverses a holding of invalidity, and remand is ordered for trial of factual issue of infringement, better practice is for district court to decide both validity and infringement issues when both are contested at trial, enabling conduct of single appeal and disposition of entire case in a single appellate opinion.

Patents ☐328(2)
291k328(2) Most Cited Cases

2,776,465, 2,823,421, 2,983,961, 3,208,100, 3,214,503, 3,544,671, 3,637,906, 3,664,915, 4,187,390. Cited as prior art.

Patents ☐328(2)
291k328(2) Most Cited Cases

3,953,566. Original. Claims 1, 17, invalid.
***1544** David H. Pfeffer, New York City, argued for appellant/cross- appellee; J. Robert Dailey and Janet Dore, New York City, John S. Campbell, Newark, Del., of counsel.

John J. Mackiewicz, Philadelphia, Pa., argued for appellee/cross-appellant. With him on the brief were Dale M. Heist, Philadelphia, Pa., Bernard Ouziel, New York City, of counsel.

Before MARKEY, Chief Judge, and DAVIS and MILLER, Circuit Judges.

MARKEY, Chief Judge.

Appeal from a judgment of the District Court for the Northern District of Ohio holding U.S. Patents 3,953,566 ('566) and 4,187,390 ('390) invalid. We affirm in part, reverse in part, and remand for a determination of the infringement issue.

Background

Tape of unsintered polytetrafluorethylene (PTFE) (known by the trademark ***1545** TEFLON of E.I. du Pont de Nemours, Inc.) had been stretched in small increments. W.L. Gore & Associates, Inc. (Gore), assignee of the patents in suit, experienced a tape breakage problem in the operation of its "401" tape stretching machine. Dr. Robert Gore, Vice President of Gore, developed the invention disclosed and claimed in the '566 and '390 patents in the course of his effort to solve that problem. The 401 machine was disclosed and claimed in Gore's U.S. Patent 3,664,915 ('915) and was the invention of Wilbert L. Gore, Dr. Gore's father. PTFE tape had been sold as thread seal tape, i.e., tape used to keep pipe joints from leaking. The '915 patent, the application for which was filed on October 3, 1969, makes no reference to stretch rate, at 10% per second or otherwise, or to matrix tensile strength in excess of 7,300 psi.

Dr. Gore experimented with heating and stretching of highly crystalline PTFE rods. Despite slow,

careful stretching, the rods broke when stretched a relatively small amount. Conventional wisdom in the art taught that breakage could be avoided only by slowing the stretch rate or by decreasing the crystallinity. In late October, 1969, Dr. Gore discovered, contrary to that teaching, that stretching the rods as fast as possible enabled him to stretch them to more than ten times their original length with no breakage. Further, though the rod was thus greatly lengthened, its diameter remained virtually unchanged throughout its length. The rapid stretching also transformed the hard, shiny rods into rods of a soft, flexible material.

Gore developed several PTFE products by rapidly stretching highly crystalline PTFE, including: (1) porous film for filters and laminates; (2) fabric laminates of PTFE film bonded to fabric to produce a remarkable material having the contradictory properties of impermeability to liquid water and permeability to water vapor, the material being used to make "breathable" rainwear and filters; (3) porous yarn for weaving or braiding into other products, like space suits and pump packing; (4) tubes used as replacements for human arteries and veins; and (5) insulation for high performance electric cables.

On May 21, 1970, Gore filed the patent application that resulted in the patents in suit. The '566 patent has 24 claims directed to processes for stretching highly crystalline, unsintered, PTFE. The processes, *inter alia,* include the steps of stretching PTFE at a rate above 10% per second and at a temperature between about 35° C and the crystalline melt point of PTFE. The '390 patent has 77 claims directed to various products obtained by processes of the '566 patent.

It is effectively undisputed that the present inventions filled a long sought yet unfilled need. The United States Army and the research director of a Garlock, Inc. (Garlock) customer had been looking for and following up every remote lead to a waterproof/breathable material for many years.

It is undisputed that the present inventions enjoyed prompt and remarkable commercial success due to their merits and not to advertising or other extraneous causes.

It is undisputed that the inventions provide the most important synthetic material available for use in vascular surgery, hundreds of thousands of persons having received artificial arteries formed of the patented product since 1976, and that the patented products have unique properties useful in other medical procedures, in communications satellites, radar systems, and electrical applications.

It is undisputed that the major sources of PTFE, ICI and du Pont, greeted the patented product as "magical", "bewitching", "a remarkable new material", and one that "differs from other processed forms of Teflon".

It is undisputed that the patented products were met with skepticism and disbelief by at least one scientist who had worked with PTFE at du Pont for many years and who testified as an expert at trial.

It is undisputed that Garlock first produced an accused product in response to a customer's request for a substitute for the ***1546** patented product, that Garlock advertised its accused product as a "new form" of PTFE and as "a versatile new material which provides new orders of performance for consumer, industrial, medical and electrical applications", and that the customer describes that accused product as "a new dimension in rainproof/breathable fabrics".

Proceedings

On Nov. 2, 1979, Gore sued Garlock for infringement of process claims 3 and 19 of the '566 patent, and sought injunctive relief, damages, and attorney fees. Garlock counterclaimed on Dec. 18, 1979, for a declaratory judgment of patent invalidity, non-infringement, fraudulent solicitation, and entitlement to attorney fees. On Feb. 7, 1980, Gore filed a second suit for infringement of product claims 14, 18, 36, 43, 67 and 77 of the '390 patent. In light of a stipulation, the district court consolidated the two suits for trial.

Gore alleged infringement of certain claims by certain products:

'566 patent claims	'390 patent claims	Garlock Product
19	14,43	film
--	36,77	laminate
19	18	yarn
--	67	braided packing
3	--	tape

At trial, Garlock addressed only claims 1, 3, 17, and 19 of the '566 patent and claims 1, 9, 12, 14, 18, 35, 36, 43, 67, and 77 of the '390 patent. See Appendix to this opinion.

The district court, in a thorough memorandum accompanying its judgment, and in respect of the '566 patent: (1) found claim 1 anticipated under 35 U.S.C. § 102(a) by Gore's use of its 401 machine and use by the Budd Company (Budd) of a Cropper machine; (2) declared all claims of the patent invalid under 102(b) because the invention had been in public use and on sale more than one year before Gore's patent application, as evidenced by Budd's use of the Cropper machine; (3) held claims 1, 3, 17 and 19 invalid for obviousness under 35 U.S.C. § 103, on the basis of various reference pairings: (a) Japanese patent 13560/67 (Sumitomo) with U.S. patent 3,214,503 (Markwood); (b) U.S. patent 2,776,465 (Smith) with Markwood; or (c) Gore's '915 patent with Sumitomo; and (4) held all claims invalid as indefinite under 35 U.S.C. § 112. [FN1]

FN1. 35 U.S.C. § 102(a) and (b) provide:
A person shall be entitled to a patent unless--
(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States, or ...
35 U.S.C. § 103 provides:
A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
35 U.S.C. § 112 provides:
The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention. A claim may be written in independent or dependent form, and if in dependent form, it shall be construed to

> include all the limitations of the claim incorporated by reference into the dependent claim.

In its opinion respecting the '390 patent, the district court held: (1) claims 1, 9, 12, 14, 18, 35, 36, 43, 67 and 77 invalid under §§ 102 and 103 in view of Sumitomo and Smith; and (2) all claims invalid as indefinite under § 112.

***1547** The court found that Gore did not commit fraud before the Patent and Trademark Office (PTO), denied Garlock's request for attorney fees, and refrained from deciding the infringement issue.

Issues

Did the district court err in: (1) its holdings of invalidity under §§ 102(a), 102(b), 103 and 112; (2) its finding that Gore did not commit fraud on the PTO; or (3) denying attorney fees.

OPINION

This hard fought and bitterly contested case involved over two years of discovery, five weeks of trial, the testimony of 35 witnesses (19 live, 16 by deposition), and over 300 exhibits. The district court issued an exhaustive 37-page memorandum opinion reflective of a careful, conscientious approach to the determination of the many issues presented at trial.

The record on appeal consists of 2000 pages. The parties' briefs total 199 pages. In those briefs, counsel repeatedly accuse each other of numerous and serious breaches of the duty of candor owed the court. Each cites instances in which the testimony, the findings, and the record are or are said to be quoted in part and out of context. As a result, the usefulness and reliability of the briefs as means of informing the court has been greatly diminished if not destroyed, and careful, time-consuming study of all exhibits and each page of the record has been required.

Appellant cited 80 prior court opinions in its main brief. Appellee's brief totally ignores all but two of those citations, but adds 57 more. Appellant's reply brief cites 126 prior court opinions, 34 earlier cited, 67 newly cited, and 25 of those cited by appellee. Appellee's reply brief cites 17 prior court opinions, 4 earlier cited, 7 newly cited, and 6 of the 147 cited by appellant. Accordingly, 211 prior court opinions have been evaluated in relation to the proof found in the record.

In light of the entire record and the applicable law, we are convinced that Garlock failed to carry its burden of proving all claims of the present patents invalid.

Standard of Review

Where, as here, dispositive legal error occurred in interpretation and application of the patent statute, 35 U.S.C., the parties' arguments relating to the salutory injunction of Fed.Rule Civ.P. 52(a) cannot be controlling on all issues. Findings that "rest on an erroneous view of the law may be set aside on that basis", *Pullman-Standard v. Swint,* 456 U.S. 273, 102 S.Ct. 1781, 42 L.Ed.2d 66 (1982). Thus it is unnecessary here to set aside any probative fact found by the district court on the basis of its being clearly erroneous, or to engage in what would be an inappropriate reweighing of the facts.

Among the legal errors extant in the record, each of which is discussed below, are (1) the invention set forth in each claim was not in each instance considered as a whole; (2) 35 U.S.C. § 102(b) was applied though criteria for its application were not present; (3) the references were not assessed in their entireties; (4) an inherency theory under §§ 102 and 103 was inappropriately applied; (5) that which only the inventor taught was attributed to the prior art; (6) individual steps in prior art processes dealing with materials distinct from those with which the present inventions dealt were erroneously equated to steps in the claimed processes; (7) objective evidence of nonobviousness was disregarded; and (8) the function and application of § 112 were misconstrued.

Because it permeated so much of the district court's analysis, we note more fully its frequent restriction of its consideration to 10% per second rate of stretching, which it called the "thrust of the invention". That approach is repeated throughout Garlock's briefs, which refer repeatedly to the "thrust of the invention", to "the inventive concept", and to the claims "shorn of their extraneous limitations". That facile focusing on the "thrust",

"concept", and "shorn" claims, resulted in treating the claims at many points as though they read differently from those actually allowed and in suit.

***1548** [1] It is true that Dr. Gore emphasized rapid stretching, for example, as well as the amount of stretch and other process limitations, during prosecution of the application for the '566 patent. Yet it is the claims that measure and define the invention. *Aro Manufacturing Co. v. Convertible Top Replacement Co.,* 365 U.S. 336, 339, 81 S.Ct. 599, 600, 5 L.Ed.2d 592 (1961); *Bowser, Inc. v. U.S.,* 388 F.2d 346, 349, 156 USPQ 406, 409 (Ct.Cl.1967).

[2][3] Each claimed invention must be considered as a whole. 35 U.S.C. § 103; *Schenck, A.G. v. Nortron Corp.,* 713 F.2d 782, 218 USPQ 698, 700 (Fed.Cir.1983). In determining obviousness, there is "no legally recognizable or protected 'essential', 'gist', or 'heart' of the invention". *Aro,* 365 U.S. at 345, 81 S.Ct. at 604. A court's restriction of a claimed multi-step process to one step constitutes error, whether done at the behest of a patentee relying on that restriction to establish infringement by one who employs only that one step in a process otherwise distinct, or at the behest of an accused infringer relying on that restriction to establish invalidity by showing that one step in a prior art process otherwise distinct.

(1) *Invalidity*
(a) *'566 Patent*
(i) *§ 102(a) and The 401 Machine*

It is undisputed that the district court held only claim 1 of the '566 patent to have been anticipated under § 102(a) by operation of the 401 machine in the Gore shop before Dr. Gore's invention in late October 1969. It did so on the deposition testimony of two former Gore employees, documents, and drawings of the 401 machine.

[4] In August, 1969, Gore offered to sell to Export Tool Company (Export) tape "to be made" on the 401 machine. Tape made on the 401 machine was shipped to Export on October 24, 1969. The trial judge found the rolls on the 401 machine were, at least at some point in time before October 1969, spaced less than four feet apart and that the rate of stretch accomplished in operating that machine (admittedly operated in accord with the description of machine operation in the '915 patent) must have been greater than 10% per second. The district court credited testimony that Teflon 6-c, a highly crystalline form of Teflon, was used because it was the standard resin at the time, and that the tape was stretched at a temperature above 35° C. Thus it cannot be said that the record fails to support the district court's finding that the limitations of claim 1 were met by Gore's operation of the 401 machine before Dr. Gore's asserted "late October, 1969" date of invention. Though he was working with the operation of the 401 machine, Dr. Gore offered no proof that his invention date was before the date of shipment to Export.

[5] Gore, seeking a review here of the evidence, points to certain inadequacies as indicating a failure to meet the required clear and convincing standard under § 102(a). At the time of trial, the district court, bound by precedent then applicable, applied a preponderance of the evidence test. Gore asserts, erroneously, that the clearly erroneous standard does not therefore apply on this appeal. Gore does not, however, point to any basis on which the district court's findings must be held to have been clearly erroneous under the clear and convincing standard. We are not at liberty, of course, to substitute our own for the district court's findings underlying its conclusion that claim 1 is invalid.

[6] Gore's operation of the 401 machine must thus be viewed as a consistent, reproducible use of Dr. Gore's invention as set forth in claim 1, and it is therefore irrelevant that those using the invention may not have appreciated the results. *General Electric Co. v. Jewel Incandescent Lamp Co.,* 326 U.S. 242, 248, 66 S.Ct. 81, 83, 90 L.Ed. 43, 67 USPQ 155, 157-58 (1945). Were that alone enough to prevent anticipation, it would be possible to obtain a patent for an old and unchanged process. *Ansonia Brass & Copper Co. v. Electric Supply Co.,* 144 U.S. 11, 18, 12 S.Ct. 601, 604, 36 L.Ed. 327 (1892); *see, ***1549**H.K. Regar & Sons, Inc. v. Scott & Williams, Inc.,* 63 F.2d 229, 231, 17 USPQ 81, 83 (2d Cir.1933).

[7] The nonsecret use of a claimed process in the usual course of producing articles for commercial purposes is a public use. *Electric Storage Battery Co. v. Shimadzu,* 307 U.S. 5, 20, 59 S.Ct. 675, 684, 83 L.Ed. 1071, 41 USPQ 155, 161 (1939), and there was no evidence that any different process

was used to produce the articles shipped to Export.

Thus it cannot be said that the district court erred in determining that the invention set forth in claim 1 of '566 patent was known or used by others under § 102(a), as evidenced by Gore's operation of the 401 machine before Dr. Gore's asserted date of that invention.

In view of our affirmance of the judgment reached on claim 1 under 102(a), we need not discuss other asserted grounds of invalidity of claim 1. There was, however, no evidence whatever that the inventions set forth in other claims, of either the '566 or the '390 patent, were known or used by others as a result of Gore's operation of the 401 machine before late October, 1969.

(ii) *§ 102(b) and the Cropper Machine*

In 1966 John W. Cropper (Cropper) of New Zealand developed and constructed a machine for producing stretched and unstretched PTFE thread seal tape. In 1967, Cropper sent a letter to a company in Massachusetts, offering to sell his machine, describing its operation, and enclosing a photo. Nothing came of that letter. There is no evidence and no finding that the present inventions thereby became known or used in this country.

In 1968, Cropper sold his machine to Budd, which at some point thereafter used it to produce and sell PTFE threat seal tape. The sales agreement between Cropper and Budd provided:

> ARTICLE "E"--PROTECTION OF TRADE SECRETS Etc.
>
> *1. BUDD* agrees that while this agreement is in force it will not reproduce any copies of the said apparatus without the express written permission of Cropper nor will it divulge to any person or persons other than its own employees or employees of its affiliated corporations any of the said known-how or any details whatsoever relating to the apparatus.
>
> *2. BUDD* agrees to take all proper steps to ensure that its employees observe the terms of Article "E" 1 and further agrees that whenever it is proper to do so it will take legal action in a Court of competent jurisdiction to enforce any one or more of the legal or equitable remedies available to a trade secret plaintiff.

Budd told its employees the Cropper machine was confidential and required them to sign confidentiality agreements. Budd otherwise treated the Cropper machine like its other manufacturing equipment.

[8] A former Budd employee said Budd made no effort to keep the secret. That Budd did not keep the machine hidden from employees legally bound to keep their knowledge confidential does not evidence a failure to maintain the secret. Similarly, that du Pont employees were shown the machine to see if they could help increase its speed does not itself establish a breach of the secrecy agreement. There is no evidence of when that viewing occurred. There is no evidence that a viewer of the machine could thereby learn anything of which process, among all possible processes, the machine is being used to practice. As Cropper testified, looking at the machine in operation does not reveal whether it is stretching, and if so, at what speed. Nor does looking disclose whether the crystallinity and temperature elements of the invention set forth in the claims are involved. There is no evidence that Budd's secret use of the Cropper machine made knowledge of the claimed process accessible to the public.

The district court held all claims of the '566 patent invalid under 102(b), *supra,* note 3, because "the invention" was "in public use [and] on sale" by Budd more than one year before Gore's application for patent. Beyond a failure to consider each of the claims independently, 35 U.S.C. § 282; ***1550** *Altoona Publix Theatres, Inc. v. American Tri-Ergon Corp.,* 294 U.S. 477, 487, 55 S.Ct. 455, 459, 79 L.Ed. 1005 (1935), and a failure of proof that the claimed inventions as a whole were practiced by Budd before the critical May 21, 1969 date, it was error to hold that Budd's activity with the Cropper machine, as above indicated, was a "public" use of the processes claimed in the '566 patent, that activity having been secret, not public.

Assuming, arguendo, that Budd sold tape produced on the Cropper machine before October 1969, and that that tape was made by a process set forth in a claim of the '566 patent, the issue under § 102(b) is whether that sale would defeat Dr. Gore's right to a patent on the process inventions set forth in the claims.

[9] If Budd offered and sold anything, it was only tape, not whatever process was used in producing it. Neither party contends, and there was no evidence, that the public could learn the claimed process by examining the tape. If Budd and Cropper commercialized the tape, that could result in a forfeiture of a patent granted them for their process on an application filed by them more than a year later. *D.L. Auld Co. v. Chroma Graphics Corp.*, 714 F.2d 1144, at 1147-48 (Fed.Cir.1983); *See Metallizing Engineering Co. v. Kenyon Bearing & Auto Parts Co.*, 153 F.2d 516, 68 USPQ 54 (2d Cir.1946). There is no reason or statutory basis, however, on which Budd's and Cropper's secret commercialization of a process, if established, could be held a bar to the grant of a patent to Gore on that process.

[10] Early public disclosure is a linchpin of the patent system. As between a prior inventor who benefits from a process by selling its product but suppresses, conceals, or otherwise keeps the process from the public, and a later inventor who promptly files a patent application from which the public will gain a disclosure of the process, the law favors the latter. *See Horwath v. Lee,* 564 F.2d 948, 195 USPQ 701 (CCPA 1977). The district court therefore erred as a matter of law in applying the statute and in its determination that Budd's secret use of the Cropper machine and sale of tape rendered all process claims of the '566 patent invalid under § 102(b).

(iii) *§ 103*

In considering claims 1, 3, 17, and 19 of the '566 patent, the district court recognized that analysis of the obviousness issue under § 103 requires determination of the scope and content of the prior art, the differences between the prior art and the claims at issue, and the level of ordinary skill in the pertinent art. *Graham v. John Deere Co.*, 383 U.S. 1, 17, 86 S.Ct. 684, 693, 15 L.Ed.2d 545, 148 USPQ 459, 467 (1966).

[11] In its consideration of the prior art, however, the district court erred in not taking into account the import of the markedly different behavior of PTFE from that of conventional thermoplastic polymers clearly established and undisputed on the record, and in thus disregarding the unpredictability and unique nature of the unsintered PTFE to which the claimed inventions relate, *In re Whiton,* 420 F.2d 1082, 164 USPQ 455 (CCPA 1970); in considering claims in less than their entireties, *Schenck, supra;* and in considering the references in less than their entireties, i.e., in disregarding disclosures in the references that diverge from and teach away from the invention at hand. *In re Kuderna,* 426 F.2d 385, 165 USPQ 575 (CCPA 1970).

Invalidity of claim 1 under § 102(a) having been determined, it is unnecessary to discuss in detail the applicability of § 103 to that claim. If claim 1 had not been held anticipated under § 102(a) in light of operation of the 401 machine, it is clear from the discussion here that claim 1 could not properly have been held invalid under § 103.

Claim 3 depends from and thus incorporates claim 1 but specifies a rate of stretch of 100% per second. Claim 17 also depends from claim 1 and specifies an amount of stretch of about twice the original length. Claim 19 depends from claim 17 but specifies an amount of stretch of about five times the original length.

U.S. patent 2,983,961 to Titterton, Volume 13 of the *Encyclopedia of Polymer* ***1551** *Science and Technology* (1970), the Sumitomo patent, and witnesses for both parties, establish that teachings related to conventional thermoplastic polymers are inapplicable to PTFE.

Articles by Dogliotti and Yelland, *Effect of Strain Rate on the Viscoelastic Properties of High Polymeric Fibrous Materials,* 4 High Speed Testing 211 (1964) and Robinson and Graham, *Methods of Characterization of Polymeric Materials by High Speed Testing Techniques,* 5 High Speed Testing 261 (1965), teach that conventional plastics and sintered PTFE can be stretched further if stretched slowly. Dr. Gore demonstrated at trial and at oral argument before us that an attempt to stretch highly crystalline, unsintered PTFE slowly results in breakage, and that rapid stretching produces a greatly lengthened rod of soft, flexible material.

The '566 patent contains an example of stretching an article to 16 times its length. Smith and the '915 patent teach that PTFE could not be stretched beyond four times its length without heating it to above its crystalline melt temperature, a step avoided by Dr. Gore and as set forth in the claims.

Sumitomo teaches that there is a length limit to stretching unsintered PTFE, and does not suggest what that limit might be. Markwood, U.S. patent 3,208,100 to Nash (Nash), and U.S. patent 2,823,421 to Scarlett (Scarlett) teach that *non-PTFE* thermoplastics can be stretched rapidly and to extended lengths, and *also* teach reduction, elimination, or avoidance of crystallinity before stretching.

[12] The disclosure in the Smith and '915 patents that a PTFE article may be stretched to as much as four times its length encompasses the step of stretching to twice its length set forth in claim 17 and establishes that such step would have been obvious.

Claims 3 and 19 must be considered individually and separately. 35 U.S.C. § 282. Nowhere, in any of the references, is it taught or suggested that highly crystalline, unsintered PTFE could be stretched at a rate of about 100% per second as required by asserted claim 3. Nor is it anywhere suggested that by rapid stretching a PTFE article be stretched to more than five times its original length as required by asserted claim 19. On the contrary, the art as a whole teaches the other way.

In concluding that obviousness was established by the teachings in various pairs of references, the district court lost sight of the principle that there must have been something present in those teachings to suggest to one skilled in the art that the claimed invention before the court would have been obvious. *In re Bergel,* 292 F.2d 955, 956-57, 130 USPQ 206, 208 (CCPA 1961); *In re Sponnoble,* 405 F.2d 578, 585, 160 USPQ 237, 244 (CCPA 1969).

The court's pairing of Sumitomo and Markwood disregarded, as above indicated, the undisputed evidence that the unsintered PTFE of Sumitomo does not respond to the conventional plastics processing of Markwood and the art recognition of that fact. *Whiton, supra,* 420 F.2d at 1085, 164 USPQ at 457.

In evaluating claim 19, for example, the pairing disregarded Sumitomo's limited length of stretch teaching. In evaluating claim 3, the court recognized that Sumitomo made no mention of rate of stretch. Looking to Markwood to supply that teaching disregarded not only the conventional plastics-unsintered PTFE distinction but also the clear divergence of Markwood's teaching that crystallinity must be reduced or avoided from the presence of "highly crystalline" in all claims of the '566 patent.

Similarly, and for many of the same reasons, the pairing of Markwood's and Smith's teachings was an inappropriate basis for concluding that the processes set forth in claims 3 and 19 would have been obvious. As above indicated, Markwood's rapid stretching of conventional plastic polypropylene with reduced crystallinity would not suggest rapid stretching of highly crystalline PTFE, in light of teachings in the art that PTFE should be stretched slowly. The Smith patent is owned by du Pont, where Dr. Gore's process invention was considered ***1552** to have produced a "remarkable new material". That circumstance is not surprising, for Smith, though dealing with PTFE, says not a word about any rate of stretch.

Lastly, the pairing of Sumitomo and the '915 patent suffers from the same shortcomings. The pairing resulted from a hypothetical set forth in Garlock's post trial brief, and was based on no testimony or other evidence in the record. In respect of claim 3, neither reference mentions rate of stretch or suggests its importance. In respect of claim 19 both references point away from the claimed invention in their limited length-of-stretch teachings. The '915 patent states: "the 65 percent expanded material could be expanded a second time for an additional 65 percent expansion or a total length increase ratio of 1:2.72 [less than three times the original length]. However, great care was necessary to obtain a uniformly expanded material at these very great expansion ratios." Thus the '915 patent suggests that the amount of stretch of 500% set forth in claim 19 (more than five times the original length) is not possible.

As indicated, Sumitomo and Smith are totally silent respecting the rate of stretch, and there is simply no teaching in the art that would suggest to one of ordinary skill that Markwood's fast stretching of other thermoplastics could or should be employed in the process of treating PTFE taught by either Sumitomo or Smith. Indeed, Smith not only says nothing about rate of stretch, its preferred teaching is away from other elements of the inventions set

forth in claims 3 and 19 Smith discloses that stretching should be done after the PTFE is heated above its crystalline melting point and with decreased crystallinity. Smith teaches:

> Below about 300° C it is *not possible* to draw more than about 4x [times] and while such draw ratios can be attained around 300° C and below the polymer's crystalline melting point with resultant orientation and improved properties it is preferred to use temperatures at or above the polymer's crystalline melting point. (Emphasis added).

Nash teaches that the film should be plasticized, i.e., made more viscous, before stretching. Contrary to that teaching, Dr. Gore did not reduce crystallinity before increasing the rate of stretch, but maintained the unsintered PTFE "highly crystalline" while stretching at a 100% per second rate and to more than five times, as set forth respectively in claims 3 and 19.

On the entire record and in view of all the references, each in its entirety, it is clear that a person of ordinary skill confronted with a PTFE tape breakage problem would have either slowed the rate of stretching or increased the temperature to decrease the crystallinity. Dr. Gore did neither. He proceeded contrary to the accepted wisdom of the prior art by dramatically increasing the rate and length of stretch *and* retaining crystallinity. That fact is strong evidence of nonobviousness. *United States v. Adams,* 383 U.S. 39, 86 S.Ct. 708, 15 L.Ed.2d 572 (1966).

Having learned the details of Dr. Gore's invention, the district court found it within the skill of the art to stretch other material rapidly (Markwood); to stretch PTFE to increase porosity (Sumitomo); and to stretch at high temperatures (Smith). The result is that the claims were used as a frame, and individual, naked parts of separate prior art references were employed as a mosaic to recreate a facsimile of the claimed invention. At no point did the district court, nor does Garlock, explain why that mosaic would have been obvious to one skilled in the art in 1969, or what there was in the prior art that would have caused those skilled in the art to disregard the teachings there found against making just such a mosaic. On the contrary, the references and the uncontested testimony, as above indicated, established that PTFE is *sui generis.* It is not surprising, therefore, that, unlike the situation in *Stratoflex, Inc. v. Aeroquip Corp.,* 713 F.2d 1530, 218 USPQ 871 (Fed.Cir.1983), there was no testimony and no finding that one skilled in the art would transfer conventional thermoplastic ***1553** processes to those for unsintered PTFE, or would have been able to predict what would happen if they did.

To imbue one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher.

It is difficult but necessary that the decisionmaker forget what he or she has been taught at trial about the claimed invention and cast the mind back to the time the invention was made (often as here many years), to occupy the mind of one skilled in the art who is presented only with the references, and who is normally guided by the then-accepted wisdom in the art. Had that been here done the inventions set forth in the claims 3 and 19 of the '566 patent could only have been held non-obvious to those skilled in the art at the time those claimed inventions were made.

[13][14] Error in visualizing the burden of proof on obviousness may have contributed to the court's application here of the prior art. Adopting the phrase from earlier precedents, the court said "the presumption [of validity] is weakened greatly where the Patent Office has failed to consider pertinent prior art". That is not the law of established precedent in this court. *SSIH Equipment S.A. v. ITC,* 718 F.2d 365, 218 USPQ 678, 687 (Fed.Cir.1983); *Solder Removal Co. v. ITC,* 582 F.2d 628, 633, 199 USPQ 129, 133, n. 9 (CCPA 1978). The presumption has no separate evidentiary value. It cautions the decisionmaker against a rush to conclude invalidity. Submission of additional art that is merely "pertinent" does not dispel that caution. It is difficult to imagine a patent law suit in which an accused infringer is unable to add some new "pertinent" art. The inescapable burden of persuasion on one who would prove invalidity, however, remains throughout the trial. 35 U.S.C. § 282.

The burden of proving invalidity may of course be facilitated by prior art that is *more pertinent* than that considered by the PTO. That did not happen here. In the present case, Sumitomo, Smith, and the '915 patent were among references considered by the PTO. Other references referred to as not considered were merely cumulative, disclosing nothing not disclosed in references that were considered by the PTO. The Canadian counterpart of Nash was considered by the PTO. The relevant disclosures of Markwood appear in Sandiford patent 3,544,671 and Paratheon patent 3,637,906, both considered by the PTO. The Russian Author's Certificate 240,997, assuming its status as prior art and whatever the material with which it dealt, contributed nothing beyond the teachings of the '915 patent considered by the PTO.

[15] As discussed more fully below, the district court erred in specifically declining to consider the objective evidence of nonobviousness. *In re Sernaker,* 702 F.2d 989, 996, 217 USPQ 1, 7 (Fed.Cir.1983). That evidence can often serve as insurance against the insidious attraction of the siren hindsight when confronted with a difficult task of evaluating the prior art. Though the prior art evidence here pointed more in the direction of nonobviousness than obviousness, the objective evidence may tend, as it did in *Sernaker, supra,* to reassure the decisionmaker.

[16] In sum, the district court erred as a matter of law on this record in concluding that Garlock had met its burden of proving that the inventions of claims 3 and 19 of the '566 patent would have been obvious.

(b) *'390 patent*

(i) *§ 102*

The district court found product claims 1, 9, 12, 14, 18 and 43 inherently anticipated because it found that the microstructure of nodes interconnected by fibrils is an inherent characteristic of paste-extruded PTFE products resulting from the process disclosed in Smith. The court found the first four of those claims and claim 43, plus claims 35, 36, 67 and 77 inherently anticipated ***1554** because high strength PTFE products are inherent in the examples of Sumitomo.

The teachings of Smith include neither a disclosure nor a suggestion of "porous" products having a "microstructure characterized by nodes interconnected by fibrils" as required by the claims found to have been anticipated by Smith.

The teachings of Sumitomo do not include a disclosure of products having "a matrix tensile strength ... above about 7,300 psi" as required by the claims found to have been anticipated by Sumitomo.

[17] Anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration. *Soundscriber Corp. v. U.S.,* 360 F.2d 954, 960, 148 USPQ 298, 301, *adopted,* 149 USPQ 640 (Ct.Cl.1966). Neither Smith nor Sumitomo disclose an invention set forth in any claim of the '390 patent.

The incongruity in findings that the different processes of Smith and Sumitomo each inherently produced identical products is striking.

Garlock attempted with expert testimony to overcome the prior art shortcomings as proof of anticipation. Gore rebutted with its own expert testimony. It is unnecessary, however, to resolve apparent conflicts in the divergent testimony, much if not all of which took the form of pure unsupported assertion. No inter partes tests in which the Smith and Sumitomo processes were conducted are of record. No products of those processes were placed in evidence, and there was, of course, no analysis of any such evidentiary products.

Nor is it necessary to evaluate the inappropriate disparagement in Garlock's brief of Dr. Sperati as a "friend" of Gore.

[18] Given the unique nature of unsintered PTFE, we are not persuaded that the "effect" of the processes disclosed in Smith and Sumitomo, an "effect" undisclosed in those patents, would be always to inherently produce or be seen always to produce products meeting all of the claim limitations. Anticipation of inventions set forth in product claims cannot be predicated on mere conjecture respecting the characteristics of products that might result from the practice of processes disclosed in references. *In re Felton,* 484 F.2d 495, 500, 179 USPQ 295, 298 (CCPA 1973). It is clear that the teachings of neither Smith nor Sumitomo

place the products claimed in the '390 patent in possession of the public.

[19] The teachings of Smith and Sumitomo are so unacceptably vague concerning characteristics of products produced by their respective processes as not to support an anticipation rejection. That fact is confirmed by the PTO's having fully considered those references and by its having issued the '390 patent over them.

[20][21] Garlock's assertion that it employs a process covered by the Smith patent, if true, is irrelevant. The '390 patent was allowed over Smith as a reference. Assuming Smith a dominating patent, the rule of law is clear that an accused infringer's employment of the process of a dominating patent does not render that employment an anticipation of an invention described and claimed in an improvement patent. As indicated, there is no present record basis for finding that the Smith process in itself necessarily and inherently results in the products, each considered in its entirety, in the claims of the '390 patent. The testimony of Garlock's expert about ex parte tests, the records of which he destroyed before trial, cannot serve as such a basis. The effusive praise of Dr. Gore's claimed products by the owner of the Smith patented process would appear, on the contrary, to confirm the action of the PTO in issuing the '390 patent.

[22] Garlock has not met its burden of showing that claims 1, 9, 12, 14, 18, and 43 are anticipated by Smith or that claims 1, 9, 12, 14, 35, 36, 43, 67, and 77 are anticipated by Sumitomo.

(ii) *§ 103*

[23][24] The scope and content of the prior art and level of ordinary skill, discussed above in relation to the '566 patent, ***1555** would be the same for the '390 patent. The district court did not, however, nor does Garlock, apply the *Graham* criteria, *supra,* to the '390 claims, apparently assuming that the claimed products, having been found inherent in the processes of Sumitomo and Smith, would have been obvious in view of those references. If so, that was error. Inherency and obviousness are distinct concepts. *In re Spormann,* 363 F.2d 444, 448, 150 USPQ 449, 452 (CCPA 1966).

In discussing inherency the district court did recognize differences between Smith's disclosure and the inventions set forth in claims 1, 9, 12, 14, 18, and 43, i.e., the absence from Smith of a description of the products of Smith's process as porous and the absence from Smith of a disclosure that those products have a microstructure characterized by nodes interconnected by fibrils.

Similarly, a difference between Sumitomo's disclosure and the inventions set forth in claims 1, 9, 12, 14, 35, 36, 43, 67, and 77 was recognized in the absence from Sumitomo of a quantification of the matrix tensile strengths of the products of Sumitomo's process. The district court also discussed differences between the dependent claims and the prior art. Because we conclude that the independent claims of the '390 patent are patentable over the art of record, we need not discuss the dependent claims.

[25] Having determined that the invention would have been obvious in view of the process of either Smith or Sumitomo, the district court did not discuss the strong showing of objective evidence of nonobviousness here present, saying with respect to one part of such evidence, "no amount of commercial success can save it." That approach was error. All evidence bearing on the issue of obviousness, as with any other issue raised in the conduct of the judicial process, must be considered and evaluated *before* the required legal conclusion is reached. *Stratoflex, supra,* 713 F.2d 1530, 218 USPQ at 879.

[26] The objective evidence of nonobviousness, i.e., the "indicia" of *Graham, supra,* may in a given case be entitled to more weight or less, depending on its nature and its relationship to the merits of the invention. It may be the most pertinent, probative, and revealing evidence available to aid in reaching a conclusion on the obvious/nonobvious issue. It should when present always be considered as an integral part of the analysis.

Gore's fabric laminates, for example, as set forth in claims 36 and 77, satisfied a long felt need for a material having the contradictory properties of being simultaneously breathable (allowing water vapor or perspiration to pass) and waterproof. The record establishes that such a material had long been sought by makers of rainwear and outerwear, and by the U.S. Army as well. That Gore's fabric

laminates filled that need is attested by the rise in their annual dollar sales from zero to seven million in the first five years of their availability.

Gore's PTFE tubes for replacement of human arteries and veins, also satisfied a long felt need. The uncontradicted evidence establishes that Gore's PTFE tubes hold blood without leaking, need not be pre-clotted with the patient's blood, are chemically inert, and, being breathable, are less likely to cause an air embolism. The value and uniqueness of those four properties make Gore's PTFE tubes, as described in unchallenged testimony, "the most important synthetic material presently existing" in vascular surgery, and, along with other evidence in the record, reflect the intended working of the patent system.

As discussed above, current annual sales of over sixty million dollars are attributable to the merits of the products claimed in the '390 patent. Considering the long felt need for those products and the obvious commercial advantage to be gained by meeting that need, it is reasonable to conclude that the claimed products of the '390 patent would not have been obvious to persons of ordinary skill in the art at the time the claimed inventions were made.

As above indicated, the praise which greeted the products claimed in the '390 patent from PTFE suppliers, including the ***1556** owner of the Smith patent, is further objective evidence of nonobviousness.

[27] Garlock's appeal argument that the '390 claims are invalid because the recited minimum matrix tensile strengths are not "critical" is without merit. A claim to a new product is not legally required to include critical limitations. *In re Miller,* 441 F.2d 689, 696, 169 USPQ 597, 602 (CCPA 1971). The '390 claims are not drawn to optimization of ingredients or ranges within broad prior art teachings, but to new porous PTFE products of particular characteristics.

[28] In sum, and in view of the difficulty of working with unsintered PTFE and its unpredictable response to various processing techniques, the vagueness of Smith and Sumitomo concerning the products produced by those processes, the filling of at least two long felt needs and the commercial success described above, we conclude that the inventions set forth in claims 1, 9, 12, 14, 18, 35, 36, 43, 67, and 77 of the '390 patent would not have been obvious to those skilled in the art at the time those inventions were made.

(c) *§ 112 and the '566 and '390 patents*

The patents in suit resulted from a single application and thus have substantially identical specifications. The holding of invalidity on the basis of § 112 is common to both patents.

The district court found that the patents did not disclose sufficient information to enable a person of ordinary skill in the art to make and use the invention, as required by § 112, first paragraph, and that certain claim language was indefinite, presumably in light of § 112, second paragraph, because: (1) there was no definition in the specification of "stretch rate", different formulae for computing stretch rate having been developed and presented at trial; (2) there was no way taught in the specification to calculate the minimum rate of stretch above 35° C; (3) the phrase "matrix tensile strength" is indefinite; and (4) the phrase "specific gravity of the solid polymer" is indefinite.

[29][30] The findings rest on a misinterpretation of § 112, its function and purpose. The district court considered whether certain terms would have been enabling to the public and looked to formula developments and publications occurring well after Dr. Gore's filing date in reaching its conclusions under § 112. Patents, however, are written to enable those skilled in the art to practice the invention, not the public, *In re Storrs,* 245 F.2d 474, 478, 114 USPQ 293, 296-97 (CCPA 1957), and § 112 speaks as of the application filing date, not as of the time of trial. *In re Mott,* 539 F.2d 1291, 1296, 190 USPQ 536, 541 (CCPA 1976). There was no evidence and no finding that those skilled in the art would have found the specification non-enabling or the claim language indefinite on May 21, 1970, when the application which resulted in issuance of Dr. Gore's patents was filed. Indeed, the expert quoted by the district court and whose testimony was primarily relied upon respecting formulae, was still in school at that time.

[31] There is uncontradicted evidence in the record that at the time the application was filed "stretch rate" meant to those skilled in the art the percent of

stretch divided by the time of stretching, and that the latter was measurable, for example, with a stopwatch. Concern for the absence from the specification of a formula for calculating stretch rate is therefore misplaced, and the post-filing date development of varying formulae, including Dr. Gore's later addition of a formula in his corresponding Japanese patent, is irrelevant.

[32] Section 112 requires that the inventor set forth the best mode of practicing the invention known to him at the time the application was filed. Calculating stretch rate at that time was accomplished by actually measuring the time required to stretch the PTFE material. That was the only mode then used by the inventor, and it worked. The record establishes that calculation by that mode would have been employed ***1557** by those of ordinary skill in the art at the time the application was filed. As indicated, Dr. Gore's disclosure must be examined for § 112 compliance in light of knowledge extant in the art on his application filing date.

[33] The district court, though discussing enablement, spoke also of indefiniteness of "stretch rate", a matter having to do with § 112, second paragraph, and relevant in assessment of infringement. The use of "stretching ... at a rate exceeding about 10% per second" in the claims is not indefinite. Infringement is clearly assessable through use of a stopwatch. No witness said that could not be done. As above indicated, subsequently developed and therefore irrelevant formulae cannot be used to render non- enabling or indefinite that which was enabling and definite at the time the application was filed.

[34][35] Similarly, absence from the specification of a method for calculating the minimum rate of stretch above 35° C does not render the specification non-enabling. The specification discloses that "[t]he lower limit of expansion rates interact with temperature in a roughly logarithmic fashion, being much higher at higher temperatures." Calculation of minimum stretch rate above 35° C is nowhere in the claims, and it is the *claimed* invention for which enablement is required. The claims require stretching at a rate greater than 10% per second at temperatures between 35°> C and the crystalline melt point of unsintered PTFE. That the minimum rate of stretch may increase with temperature does not render non-enabling Dr. Gore's specification, particularly in the absence of convincing evidence that those skilled in the art would have found it non-enabling at the time the application was filed.

[36][37][38] The district court invalidated both patents for indefiniteness because of its view that some "trial and error" would be needed to determine the "lower limits" of stretch rate above 10% per second at various temperatures above 35° C. That was error. Assuming some experimentation were needed, a patent is not invalid because of a need for experimentation. *Minerals Separation, Ltd. v. Hyde,* 242 U.S. 261, 270-71, 37 S.Ct. 82, 86, 61 L.Ed. 286 (1916). A patent is invalid only when those skilled in the art are required to engage in *undue* experimentation to practice the invention. *In re Angstadt,* 537 F.2d 498, 503-04, 190 USPQ 214, 218 (CCPA 1976). There was no evidence and the court made no finding that undue experimentation was required.

[39] Moreover, the finding here rested on confusion of the role of the specification with that of the claims. The court found that the specification's failure to state the lower limit of stretch rate (albeit above 10% per second) at each degree of temperature above 35° C (a requirement for at least hundreds of entries in the specification) did not "distinguish processes performed above the 'lower limit' from those performed below the 'lower limit' ". The claims of the '390 patent say nothing of processes and lower limits. Distinguishing what infringes from what doesn't is the role of the claims, not of the specification. It is clear that the specification is enabling, *In re Storrs, supra,* and that the claims of both patents are precise within the requirements of the law. *In re Moore,* 439 F.2d 1232, 169 USPQ 236 (CCPA 1971).

[40][41] The finding that "matrix tensile strength" is indefinite, like the other findings under § 112, appears to rest on a confusion concerning the roles of the claims and the specification. While finding "matrix tensile strength" in the claims indefinite, the district court at the same time recognized that the specification itself disclosed how to compute matrix tensile strength, in stating "to compute matrix tensile strength of a porous specimen, one divides the maximum force required to break the sample by the cross sectional area of the porous sample, and

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then multiplies this quantity by the ratio of the specific gravity of the solid polymer divided by the specific gravity of the porous specimen." Further, the specification provided the actual matrix tensile strength in several examples. ***1558** It is well settled that a patent applicant may be his own lexicographer. In light of the disclosure of its calculation in the specification, we cannot agree that "matrix tensile strength" is either indefinite or non-enabling.

[42] Nor does absence from the specification of a definition for "specific gravity of the solid polymer", a part of the computation of matrix tensile strength, render that computation indefinite. It is undisputed that in the many examples in the application the specific gravity values used for unsintered and sintered PTFE were 2.3 and 2.2, respectively. There was no testimony that those values were not known to persons of ordinary skill in the art or could not be calculated or measured. There is simply no support for the conclusion that "specific gravity of the solid polymer" is indefinite or that absence of its definition renders the specification non-enabling. *See In re Wertheim,* 541 F.2d 257, 191 USPQ 90 (CCPA 1976).

We conclude that Garlock has failed to prove that at the time the application was filed, the specification was not enabling or that the claims were indefinite within the meaning of § 112.

(2) *Fraud*

[43] Fraud must be shown by clear and convincing evidence. *Norton v. Curtiss,* 433 F.2d 779, 797, 167 USPQ 532, 546-47 (CCPA 1970).

> The state of mind of the one making the representations is probably the most important of the elements to be considered in determining the existence of "fraud." ... Good faith and subjective intent, while they are to be considered, should not *necessarily* be made controlling. Under ordinary circumstances, the *fact* of misrepresentation coupled with proof that the party making it had knowledge of its falsity is enough to warrant drawing the inference that there was a fraudulent intent. Where public policy demands a complete and accurate disclosure it may suffice to show nothing more than that the misrepresentations were made in an atmosphere of gross negligence as to their truth. [emphasis in original].

Norton, 433 F.2d at 795-96, 167 USPQ at 545; *see,* Miller, *Fraud on the PTO,* 58 JPOS 271 (1976).

[44] Garlock alleges fraud in Gore's representations that stretching PTFE tape at a rate greater than 10% per second was novel and that it produces a physical phenomenon. The district court found the evidence insufficient to establish that Gore had a specific intent to defraud the PTO. No basis exists for our overturning that finding. Accordingly, we agree with the district court that Garlock has failed to sustain its heavy burden of proving, by clear and convincing evidence, sufficient facts from which fraudulent intent can be inferred.

Garlock points to a September 4, 1975 Gore affidavit filed in the PTO that stated:

> 2. Prior to my invention disclosed in the captioned patent application, during production of expanded PTFE products by W.L. Gore & Associates, Inc., the rate of stretching was neither measured nor controlled and to my knowledge did *not* involve stretching of unsintered PTFE at a rate exceeding about 10% per second. (emphasis in original)

No finding of the district court and no evidence of record establishes that that statement was made in reckless disregard of facts from which an intent to defraud may be inferred.

[45] The district court's finding in 1982 that the 401 machine inherently stretched tape at some time in 1969 at a rate more than 10% per second, does not establish that Dr. Gore was aware of that fact in 1975, nor does it make untrue his statement that to his knowledge that had not been the rate of stretch employed. Nor does the district court's finding conflict with Dr. Gore's statement that the rate of stretching was neither measured nor controlled in the Gore shop before his invention of the claimed process as a whole.

[46] Nor does the evidence of isolated statements support Garlock's contention ***1559** that Dr. Gore attempted to convince the PTO that a physical phenomenon always existed in which stretching at a rate greater than 10% per second always produced a matrix tensile strength greater than 7300 psi. On the contrary, Dr. Gore set forth in his specification examples indicating that some samples broke,

ruptured, or disintegrated.

(3) *Attorney's Fees*

[47] The district court did not abuse its discretion in denying Garlock its request for attorney fees.

Infringement

[48] Where, as here, an appellate court reverses a holding of invalidity, and remand is ordered for trial of the factual issue of infringement, an inefficient use of judicial resources results if the second judgment is appealed. The better practice would therefore be for the district court to decide both the validity and infringement issues when both are contested at the trial, enabling the conduct of a single appeal and disposition of the entire case in a single appellate opinion.

Resolution of the infringement issue at trial may also overlap with resolution of the validity issue, where, for example, the claimed invention was or was not copied by the validity challenger, or the challenger substituted the claimed invention for freely available prior art processes or products, *Eibel Process Co. v. Minnesota & Ontario Paper Co.*, 261 U.S. 45, 56, 43 S.Ct. 322, 325, 67 L.Ed. 523 (1923), or an assertion of nonenablement may conflict with the ease with which the accused infringer may be shown to have practiced the invention as taught in the patent. *Eibel, supra,* 261 U.S. at 65-66, 43 S.Ct. at 329.

The district court having declined to decide the infringement issue, Gore suggests that the record here is sufficient to warrant our deciding it now. With reluctance in view of the length and bitter nature of the present litigation, we decline the suggestion. In so doing, we imply nothing of our view on the issue. Nor do we intend any implication that the district court could not itself determine the infringement issue on the present record. Infringement of particular claims of two patents was asserted. None of those claims has been finally held invalid. Assuming their continued assertion, infringement must be decided with respect to each asserted claim as a separate entity. *Altoona, supra,* 294 U.S. at 487, 55 S.Ct. at 459. Those factual determinations should be made in the first instance by the district court.

Decision

The holdings of invalidity of claim 1 of the '566 patent under § 102(a) and of claim 17 of the '566 patent under § 103, the determination that Gore did not commit fraud on the PTO, and the denial of attorney fees, are affirmed; the holdings that all claims of the '566 patent are invalid under § 102(b), that claims 3 and 19 of the '566 patent are invalid under § 103, and that all claims of the '566 patent are invalid under § 112, are reversed. The holdings that claims 1, 9, 12, 14, 18, 35, 36, 43, 67, and 77 of the '390 patent are invalid under §§ 102 and 103, and that all claims of the '390 patent are invalid under § 112, are reversed. The case is remanded for determination of the infringement issue.

AFFIRMED IN PART, REVERSED IN PART, AND REMANDED.

Appendix

Claims of the '566 patent discussed at trial:

1. A process for the production of a porous article of manufacture of a polymer of tetrafluoroethylene which process comprises expanding a shaped article consisting essentially of highly crystalline poly (tetrafluoroethylene) made by a paste-forming extrusion technique, after removal of lubricant, by stretching said unsintered shaped article at a rate exceeding about 10% per second and maintaining said shaped article at a temperature between about 35°> C. and the crystalline melt point of said tetrafluoroethylene polymer during said stretching.

***1560** 3. The process of claim 1 in which the rate of stretch is about 100% per second.

17. The process of claim 1 in which the shaped article is expanded such that its final length in the direction of expansion is greater than about twice the original length.

19. The process of claim 17 in which said final length is greater than about five times the original length.

Claims of the '390 patent discussed at trial:

1. A porous material consisting essentially of highly crystalline polytetrafluoroethylene polymer, which material has a microstructure characterized by nodes interconnected by fibrils and has a matrix tensile strength in at least one

direction above about 73,00 psi.
9. A porous material consisting essentially of polytetrafluoroethylene polymer, which material has a microstructure characterized by nodes interconnected by fibrils and has a matrix tensile strength in at least one direction above 9290 psi, which material has been heated to a temperature above the crystalline melt point of said polymer and has a crystallinity below about 95%.
12. A porous material in accordance with claim 9 which is in the form of a shaped article.
14. A product in accordance with claim 12 which is in the form of a film.
18. A product in accordance with claim 12 which is in the form of continuous filaments.
35. A laminated structure comprising (a) a first shaped article formed of a porous material made of a tetrafluoroethylene polymer, which material has a microstructure characterized by nodes interconnected by fibrils and has a matrix tensile strength in at least one direction above about 7,300 psi, and (b) a second shaped article bonded to said first shaped article.
36. The structure of claim 35 in which said first shaped article is formed of a porous material which has a matrix tensile strength in at least one direction of at least 9290 psi, and has a crystallinity below about 95%.
43. A porous material made of a tetrafluoroethylene polymer, which material has a microstructure characterized by nodes interconnected by fibrils, which material (a) has a matrix tensile strength in at least one direction above about 9290 psi, (b) has been heated to a temperature above 327° C. and has a crystallinity below about 95%, and (c) has a dielectric constant of 1.2-1.8.
67. An impregnated structure comprising
(a) a shaped article formed of a porous material made of a tetrafluoroethylene polymer which material has a microstructure characterized by nodes interconnected by fibrils and a matrix tensile strength in at least one direction above about 9290 psi, and
(b) a polymer impregnated within the pores of the said shaped article.
77. The structure of claim 35 in which the first shaped article is a sheet having pores that will pass a gas but will not pass liquid water.

DAVIS, Circuit Judge, concurring in the result in part and dissenting in part.

I concur in the result on (1) the validity of the '390 patent under §§ 102- 103; (2) the validity of the '390 patent under § 112; (3) the invalidity of claims 1 and 17 of the '566 patent; (4) lack of fraud on the Patent and Trademark Office; and (5) denial of attorney's fees. I disagree and dissent as to the validity of claims 3 and 19 of the '566 patent.

1. The process invention embodied in claim 1 of the '566 patent was known, through use of the 401 machine in the Gore shop, well before the "invention date" (claimed by Robert Gore, the inventor) of October 1969. [FN1] As such, the claimed invention was invalid on at least three grounds: (i) it was anticipated and therefore would ***1561** have been obvious (under 35 U.S.C. § 103) at the time of the claimed invention date; (ii) the invention was "in public use" by the Gore shop (under 35 U.S.C. § 102(b)) more than one year prior to the patent application (*i.e.*, prior to May 21, 1969); and (iii) the invention (made by Robert Gore) was known to and used "by others in this country" (35 U.S.C. § 102(a)) before the claimed invention date of October 1969, *i.e.* the invention was used by Wilbert Gore and others in the Gore shop before the October date. [FN2]

FN1. The 401 machine was used under the prior '915 patent (issued to Wilbert Gore) which contains no reference to the significance of the rate of stretch.

FN2. Aside from the bases I discuss, I do not reach the other grounds asserted for invalidity of the '566 patent.

The critically important aspect of the invention of the '566 patent is the stretching of PTFE at a rate above 10% per second. [FN3] Robert Gore testified that he conceived this invention no earlier than October 1969 (and we have the right to take him at his word), [FN4] but the facts found by the District Court plainly show that the Gore shop was in fact practicing that invention considerably earlier.

FN3. Before the PTO Robert Gore concededly referred to this as "critical" to his invention or as *his* "invention."

FN4. The District Court found that October 1969 was the earliest date Robert Gore asserts for his conception of the invention in the '566 patent.

The District Court found that in the 401 machine the distance between the stretch rollers controls the rate of stretch; a shorter distance results in a higher rate of stretch; for the process described in the '915 patent to be practiced with a rate of stretch *below* 10% per second, the distance between the stretch rollers would have to be greater than five feet; if the distance is less than four feet, the rate of stretch is greater than 10% per second; the machine drawings used to construct the 401 machine indicate that the distance between the stretch rollers was eight *inches;* a Gore employee testified that "I am reasonably sure that no effective [stretch] rolls in question would have been more than three feet simply because of the nature and size of the equipment" and that he did not remember any stretching more than three feet; another Gore employee testified that the distance between the rollers was "a maximum of 18 *inches*" (emphasis added); a document prepared by the same employee (an engineer) on June 10, 1969 reports that the stretch span was 8 *inches;* the 401 machine was the only stretching machine used by the Gore company; and the 401 machine was never substantially changed before October 1969. All this adds up to the fact that the 401 machine was at all relevant times operated with a stretch of less than four feet. [FN5] There is no question that the machine was so operated before October 1969 (the District Court found that sales of tape made by the 401 machine were proposed in August 1969).

FN5. The Gores (Robert and Wilbert) testified at trial that the distance was five feet but there is no indication that the trial court (which did not cite this testimony but did cite the opposing evidence) credited the Gores' testimony.

I can accept Robert Gore's affidavit (to the PTO) that there was no stretching in the Gore shop at a rate exceeding about 10% per second prior to "*my* invention disclosed in the captioned patent application" (emphasis added) [FN6] only because that declaration was expressly qualified by the phrase "to *my* knowledge" (emphasis added). The District Court specifically found no specific intent by Robert Gore to defraud and, on this record, we cannot properly overturn that finding. But the absence of personal intent to defraud does not mean or say that, whether Robert Gore realized it or not, the 401 machine was not actually operating, well before October 1969, to stretch unsintered ***1562** PTFE at a rate exceeding about 10% per second. *Cf. O'Brien v. Westinghouse Electric Corp.,* 293 F.2d 1, 10 (3rd Cir.1961). It seems impossible to me to reconcile Robert Gore's insistence on two facts-- that (i) he invented the process in October 1969 and (ii) he had no knowledge prior to October 1969 of stretching PTFE at the critical rate--with the solid facts in the record as to the prior operation of the 401 machine, except on the view that Robert Gore did not realize that he and others in the Gore shop had made his invention previously.

FN6. The factor of the rate of stretching was of direct interest to the examiner during the prosecution of the '566 patent. In response to the examiner's express request for a declaration that the Gore firm's production of stretched PTFE tape, prior to Robert Gore's invention asserted here, did not involve stretching of unsintered PTFE at a rate exceeding about 10% per second, Robert Gore filed an affidavit in the PTO specifically stating that "*to my knowledge*" (emphasis added) the 401 machine did *not* involve stretching at a rate exceeding about 10% per second.

2. It follows that in October 1969 the invention of '566 would have been obvious under § 103 to Robert Gore because the prior practice of the 401 machine constituted prior art. Even if this was not prior art technically within § 102, that statutory provision "is not the *only* source of prior art." *In re Fout,* 675 F.2d 297, 300 (CCPA 1982, emphasis in original). The 401 machine was practiced under the '915 patent (issued to Wilbert Gore) and, whether or

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not Robert Gore subjectively realized what was happening, he and others in the Gore shop were practicing the invention later embodied in the '566 patent. That was prior art at least as to Robert Gore. *Id.* at 300-01. [FN7]

FN7. The District Court has found that there are no differences between claim 1 of the '566 patent and the processes previously used by the Gore firm to produce paste-extruded unsintered PTFE.

3. If it be thought necessary to invoke § 102 directly, in order to show anticipation, the record contains proof that the 401 machine was designed, constructed and used (just as described *supra*) in November and December 1968 and the early months of 1969--more than one year prior to the '566 patent application of May 21, 1970. *See* Jt.App. E 1199--E 1200. Section 102(b) therefore applies. Although commercial production was apparently not actively sought until June 1969, the practicing of the 401 machine prior to May 21, 1969 was "a public use" because the Gore company made "use of the device * * * in the factory in the regular course of business." *Connecticut Valley Enterprises, Inc. v. United States,* 348 F.2d 949, 952, 146 USPQ 404, 406 (Ct.Cl.1965).

4. Also, § 102(a) [FN8] applies here because Robert Gore was the inventor in the '566 patent and Wilbert Gore and others in the Gore shop were using the 401 machine before October 1969. Wilbert Gore (the inventor in the '915 patent under which the 401 machine was made and used) and the other employees are "others" within § 102(a)--they are not the same as Robert Gore who claimed to be inventor of the process that ripened into the '566 patent. [FN9] *See also* § 102(f), which would bar Robert Gore if he did not himself invent the subject matter of the '566 patent. [FN10]

FN8. An invention is anticipated if it "was known or used *by others* in this country * * * * before the invention thereof by the applicant for patent" (emphasis added).

FN9. It is undisputed that it was Wilbert Gore who initiated the project for the 401 machine and watched over it.

FN10. The majority's discussion of "secondary considerations," though it is relevant to other aspects of this case, is irrelevant to the issue of anticipation raised by the 401 machine, and hardly persuasive as to the issues of obviousness based on or with respect to the 401 machine.

5. The majority sustains the validity of claims 3 and 19 of the '566 patent (the claims also involved in appellant's suit for infringement) which are dependent on invalid claim 1. Because of the invalidity of claim 1 the only possible novelty in claim 3 would be the requirement that the rate of stretch would be about 100% per second, and the possible novelty of claim 19 would be that the final length would be greater than about five times the original length. My position is that both of these added elements, if novel, would have been obvious to persons of ordinary skill in the art.

The defect in the majority's analysis is that it neglects the cardinal fact that the prior art included the 401 machine (discussed *supra*), not merely the earlier patents assessed in the majority opinion. The 401 machine directly involved PTFE itself, not conventional thermoplastic polymers. ***1563** That machine also directly involved rapid stretching of PTFE at a rate markedly exceeding 10%. With this prior art of the 401 machine before him, an ordinary person skilled in the art would maximize stretch rate, if only to improve the machine's production rate. Cf. *In re Dwyer, Jewell, Johnson, McGrath, & Rubin,* 317 F.2d 203, 207, 137 USPQ 540 (CCPA 1963). Moreover, the very existence and operation of the 401 machine, which stretched PTFE rapidly without breaking, suggests to the skilled person the probability of stretching at even higher rates. Certainly, in the light of the 401 machine, skilled workers would see in at least the prior Markwood, Nash, and Scarlett patents (teaching extensive and rapid stretching of non-PTFE thermoplastics) the suggestion that the method of the 401 machine could also be used for comparable rapid and extensive stretching of PTFE.

6. In sum, I cannot escape the conclusion

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that--although there was no fraud proved--if the true facts as to the 401 machine had been made known to the PTO (as it requested), the involved claims of the '566 patent should (and probably would) not have been accepted.

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Briefs and Other Related Documents (Back to top)

- 1983 WL 486725 (Appellate Brief) Reply Brief for Appellee Garlock, Inc. (May. 25, 1983)

- 1983 WL 486890 (Appellate Brief) Reply Brief for Appellee Garlock, Inc. (May. 25, 1983) (Appellate Brief) Reply Brief for Appellee Garlock, Inc. (May. 25, 1983) Original Image of this Document (PDF)

- 1983 WL 486724 (Appellate Brief) Reply and Answering Brief for Appellant W. L. Gore & Associates, Inc. (May. 11, 1983)

- 1983 WL 486723 (Appellate Brief) Brief for Appellee Garlock, Inc. (Apr. 11, 1983)

- 1983 WL 486889 (Appellate Brief) Brief for Appellee Garlock, Inc. (Apr. 11, 1983) (Appellate Brief) Brief for Appellee Garlock, Inc. (Apr. 11, 1983) Original Image of this Document (PDF)

- 1983 WL 486726 (Appellate Brief) Brief for Appellant W.L. Gore & Associates, Inc. (Feb. 22, 1983)

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Westlaw.

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Briefs and Other Related Documents

United States Court of Appeals,
Federal Circuit.

In re Anita DEMBICZAK and Benson Zinbarg,
Appellants.

No. 98-1498.

April 28, 1999.

Board of Patent Appeals and Interferences upheld rejection of application for utility patent, and appeal was taken. The United States Court of Appeals for the Federal Circuit, Clevenger, Circuit Judge, held that: (1) Board erred by rejecting application for patent on plastic trash bags with pumpkin face on grounds of obviousness, without finding suggestion, teaching, or motivation to combine prior art references, and (2) applicant's earlier design patents involving pumpkin faces on bags did not preclude issuance of patent in present case, under obviousness-type double patenting doctrine.

Reversed.

West Headnotes

[1] Patents ⇐113(6)
291k113(6) Most Cited Cases

Federal Circuit determines legal question of obviousness of patent without deference to Board of Patent Appeals and Interferences, and examines any factual findings for clear error. 35 U.S.C.A. § 103(a).

[2] Patents ⇐16(1)
291k16(1) Most Cited Cases

Measuring a claimed invention for obviousness requires the oft-difficult but critical step of casting the mind back to the time of invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom in the field. 35 U.S.C.A. § 103(a).

[3] Patents ⇐16(4)
291k16(4) Most Cited Cases

Best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis of a patent application is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references. 35 U.S.C.A. § 103(a).

[4] Patents ⇐26(1)
291k26(1) Most Cited Cases

Evidence of a suggestion, teaching, or motivation to combine prior art references, sufficient to render invention obvious and unpatentable, may flow from the prior art references themselves, the knowledge of one of ordinary skill in the art, or, in some cases, from the nature of the problem to be solved. 35 U.S.C.A. § 103(a).

[5] Patents ⇐36(1)
291k36(1) Most Cited Cases

Broad conclusory statements regarding the teaching of multiple references, standing alone, are not evidence sufficient to render invention obvious and unpatentable. 35 U.S.C.A. § 103(a).

[6] Patents ⇐16.27
291k16.27 Most Cited Cases

Board of Patent Appeals and Interferences erred by denying for obviousness application for utility patent for orange colored plastic trash bag with markings, which expanded to show face of pumpkin when filled with leaves, when Board cited prior art showing placement of pumpkin faces on crepe paper and which disclosed features of plastic trash bags and concluded that prior art references collectively described all limitations of present

claims; Board should have found a suggestion, teaching, or motivation to combine prior art references. 35 U.S.C.A. § 103(a).

[7] Patents ⚿113(6)
291k113(6) Most Cited Cases

Federal Circuit would not consider argument made in support of obviousness of patent application, which was not raised before Board of Patent Appeals and Interferences. 35 U.S.C.A. § 103(a).

[8] Patents ⚿120
291k120 Most Cited Cases

The doctrine of "obviousness-type double patenting" prohibits claims in a second patent which define merely an obvious variation of an invention claimed by the same inventor in an earlier patent. 35 U.S.C.A. § 103(a).

[9] Patents ⚿314(5)
291k314(5) Most Cited Cases

Question whether patent application is to be rejected, under obvious-type double patenting doctrine, on grounds that claimed invention was merely an obvious variation on invention disclosed in existing patent, is one of law, which Federal Circuit reviews de novo. 35 U.S.C.A. § 103(a).

[10] Patents ⚿120
291k120 Most Cited Cases

In some very rare cases, obvious-type double patenting, in which invention claimed in patent application was obvious variation on invention disclosed by existing patent, may be found between design and utility patents. 35 U.S.C.A. § 103(a).

[11] Patents ⚿120
291k120 Most Cited Cases

When utility patent is sought to be invalidated due to obviousness, in light of previous design patents, rejection under obviousness-type double patenting doctrine is appropriate only if the claims of the two patents cross-read, meaning that the test is whether the subject matter of the claims of the patent sought to be invalidated would have been obvious from the subject matter of the claims of the other patent, and vice versa. 35 U.S.C.A. § 103(a).

[12] Patents ⚿28
291k28 Most Cited Cases

In order for a design to be unpatentable because of obviousness, there must first be a basic design reference in the prior art, the design characteristics of which are basically the same as the claimed design. 35 U.S.C.A. § 103(a).

[13] Patents ⚿120
291k120 Most Cited Cases

Phrase "having facial indicia thereon," contained in claim of application for utility patent on plastic trash bag with pumpkin face, was not design reference that was basically the same as claimed design covered by design patents on jack-o-lantern faces on bags, and application was consequently not required to be rejected under obviousness-type double patenting doctrine. 35 U.S.C.A. § 103(a).
***996** David P. Gordon, of Stamford, Connecticut, argued for appellant. Of counsel was Thomas A. Gallagher, of Stamford, Connecticut.

John M. Whealan, Associate Solicitor, Office of the Solicitor, of Arlington, Virginia, argued for appellee. With him on the brief were Albin F. Drost, Acting Solicitor, and David R. Nicholson, Associate Solicitor.

Before MAYER, Chief Judge, MICHEL and CLEVENGER, Circuit Judges.

CLEVENGER, Circuit Judge.

Anita Dembiczak and Benson Zinbarg appeal the rejection, upheld by the Board of Patent Appeals and Interferences, of all pending claims in their Application No. 08/427,732. *See Ex Parte Dembiczak*, No. 96-2648, slip op. at 43 (May 14, 1998). Because the Board erred in sustaining rejections of the pending claims as obvious under 35 U.S.C. § 103(a) (Supp.1998), and for obviousness-type double patenting, we reverse.

I

The invention at issue in this case is, generally speaking, a large trash bag made of orange plastic

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and decorated with lines and facial features, allowing the bag, when filled with trash or leaves, to resemble a Halloween-style pumpkin, or jack-o'-lantern. As the inventors, Anita Dembiczak and Benson Zinbarg (collectively, "Dembiczak") note, the invention solves the long- standing problem of unsightly trash bags placed on the curbs of America, and, by fortuitous happenstance, allows users to express their whimsical or festive nature while properly storing garbage, leaves, or other household debris awaiting collection. Embodiments of the invention--sold under a variety of names, including Giant Stuff-A-Pumpkin, Funkins, Jack Sak, and Bag-O-Fun--have undisputedly been well-received by consumers, who bought more than seven million units in 1990 alone. Indeed, in 1990, the popularity of the pumpkin bags engendered a rash of thefts around Houston, Texas, leading some owners to resort to preventative measures, such as greasing the bags with petroleum jelly and tying them to trees. *See* R. Piller, "Halloween Hopes Die on the Vine," *Hous. Chron.*, Oct. 19, 1990, at 13A.

The road to profits has proved much easier than the path to patentability, however. In July 1989, Dembiczak filed a utility patent application generally directed to the pumpkin bags. In a February 1992 appeal, the Board of Patent Appeals and Interferences ("the Board") reversed the Examiner's rejection, but entered new grounds for rejection. Dembiczak elected to continue prosecution, filing a continuation application to address the new grounds for rejection. Thereafter, the invention made a second appearance before the Board, in April 1993, when the Board both sustained the Examiner's rejection and again entered new grounds for rejection. Again, a continuation application was filed (the instant application). And again the Examiner's rejection was appealed to the Board, which sustained the rejection in a May 14, 1998, decision. *See Dembiczak*, slip op. at 43.

A

The patent application at issue includes claims directed to various embodiments of *997 the pumpkin bag. Claims 37, 49, 51, 52, 58 through 64, 66 through 69, and 72 through 81 are at issue in this appeal. Though the claims vary, independent claim 74 is perhaps most representative:

74. A decorative bag for use by a user with trash filling material, the bag simulating the general outer appearance of an outer surface of a pumpkin having facial indicia thereon, comprising:
a flexible waterproof plastic trash or leaf bag having
an outer surface which is premanufactured orange in color for the user to simulate the general appearance of the outer skin of a pumpkin, and having
facial indicia including at least two of an eye, a nose and a mouth on the orange color outer surface for forming a face pattern on said orange color outer surface to simulate the general outer appearance of a decorative pumpkin with a face thereon,
said trash or leaf bag having first and second opposite ends, at least said second end having an opening extending substantially across the full width of said trash or leaf bag for receiving the trash filling material,
wherein when said trash or leaf bag is filled with trash filling material and closed, said trash or leaf bag takes the form and general appearance of a pumpkin with a face thereon.

All of the independent claims on appeal, namely 37, 52, 72, and 74, contain limitations that the bag must be "premanufactured orange in color," have "facial indicia," have openings suitable for filling with trash material, and that when filled, the bag must have a generally rounded appearance, like a pumpkin. Independent claims 37, 52, and 72 add the limitation that the bag's height must at least 36 inches. Claim 72 requires that the bag be made of a "weatherproof material," and claim 74, as shown above, requires that the bag be "waterproof." Claim 52 recites a "method of assembling" a bag with the general characteristics of apparatus claim 37.

B

The prior art cited by the Board includes:
(1) pages 24-25 of a book entitled "A Handbook for Teachers of Elementary Art," by Holiday Art Activities ("Holiday"), describing how to teach children to make a "Crepe Paper Jack-O-Lantern" out of a strip of orange crepe paper, construction paper cut-outs in the shape of facial features, and "wadded newspapers" as filling;
(2) page 73 of a book entitled "The Everything

Book for Teachers of Young Children," by Martha Shapiro and Valerie Indenbaum ("Shapiro"), describing a method of making a "paper bag pumpkin" by stuffing a bag with newspapers, painting it orange, and then painting on facial features with black paint;

(3) U.S. Patent No. 3,349,991 to Leonard Kessler, entitled "Flexible Container" ("Kessler"), describing a bag apparatus wherein the bag closure is accomplished by the use of folds or gussets in the bag material;

(4) U.S. Patent No. Des. 310,023, issued August 21, 1990 to Dembiczak ("Dembiczak '023"), a design patent depicting a bag with a jack-o'-lantern face;

(5) U.S. Patent No. Des. 317,254, issued June 4, 1991 to Dembiczak ("Dembiczak '254"), a design patent depicting a bag with a jack-o'-lantern face; and,

(6) Prior art "conventional" plastic lawn or trash bags ("the conventional trash bags").

Using this art, the Board affirmed the Examiner's final rejection of all the independent claims (37, 52, 72, 74) under *9935 U.S.C. § 103, holding that they would have been obvious in light of the conventional trash bags in view of the Holiday and Shapiro references. The Board determined that, in its view of the prior art, "the only difference between the invention presently defined in the independent claims on appeal and the orange plastic trash bags of the prior art and the use of such bags resides in the application of the facial indicia to the outer surface of the bag." *Dembiczak*, slip op. at 18. The Board further held that the missing facial indicia elements were provided by the Holiday and Shapiro references' description of painting jack-o'-lantern faces on paper bags. *See id.* at 18-19. Dependent claims 49 and 79, which include a "gussets" limitation, were considered obvious under similar reasoning, except that the references cited against them included Kessler. *See id.* at 7.

The Board also affirmed the Examiner's obviousness-type double patenting rejection of all the independent claims in light of the two Dembiczak design patents ('023 and '254) and Holiday. *See id.* at 12. The Board held that the design patents depict a generally rounded bag with jack-o'-lantern facial indicia, and that the Holiday reference supplies the missing limitations, such as the "thin, flexible material" of manufacture, the orange color, the initially-open upper end, and the trash filling material. The Board also stated that the various limitations of the dependent claims--*e.g.*, color, the inclusion of leaves as stuffing, and the dimensions--would all be obvious variations of the depictions in the Dembiczak design patents. *See id.* at 8-9. In addition, using a two-way test for obviousness-type double patenting, the Board held that the claims of the Dembiczak design patents "do not exclude" the additional structural limitations of the pending utility claims, and thus the design patents were merely obvious variations of the subject matter disclosed in the utility claims. *See id.* at 11. The Board further upheld, on similar grounds and with the inclusion of the Kessler reference, the obviousness-type double patenting rejection of dependent claim 49. *See id.* at 12.

This appeal followed, vesting this court with jurisdiction pursuant to 28 U.S.C. § 1295(a)(4)(A) (1994).

II

[1] A claimed invention is unpatentable if the differences between it and the prior art "are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art." 35 U.S.C. § 103(a) (Supp.1998); *see Graham v. John Deere Co.*, 383 U.S. 1, 14, 86 S.Ct. 684, 15 L.Ed.2d 545, 148 USPQ 459, 465 (1966). The ultimate determination of whether an invention is or is not obvious is a legal conclusion based on underlying factual inquiries including: (1) the scope and content of the prior art; (2) the level of ordinary skill in the prior art; (3) the differences between the claimed invention and the prior art; and (4) objective evidence of nonobviousness. *See Graham*, 383 U.S. at 17-18, 86 S.Ct. 684, 15 L.Ed.2d 545, 148 USPQ at 467; *Miles Labs., Inc. v. Shandon Inc.*, 997 F.2d 870, 877, 27 USPQ2d 1123, 1128 (Fed.Cir.1993). We therefore review the ultimate determination of obviousness without deference to the Board, while examining any factual findings for clear error. *See*, e.g., *In re Zurko*, 142 F.3d 1447, 1459, 46 USPQ2d 1691, 1700 (Fed.Cir.) (en banc), cert. granted, 525 U.S. 961, 119 S.Ct. 401, 142 L.Ed.2d 326 (1998).

A

[2] Our analysis begins in the text of section 103

quoted above, with the phrase "at the time the invention was made." For it is this phrase that guards against entry into the "tempting but forbidden zone of hindsight," *see Loctite Corp. v. Ultraseal Ltd.,* 781 F.2d 861, 873, 228 USPQ 90, 98 (Fed.Cir.1985), overruled on other grounds by ***999***Nobelpharma AB v. Implant Innovations, Inc.,* 141 F.3d 1059, 46 USPQ2d 1097 (Fed.Cir.1998), when analyzing the patentability of claims pursuant to that section. Measuring a claimed invention against the standard established by section 103 requires the oft-difficult but critical step of casting the mind back to the time of invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom in the field. *See, e.g., W.L. Gore & Assocs., Inc. v. Garlock, Inc.,* 721 F.2d 1540, 1553, 220 UPSQ 303, 313 (Fed.Cir.1983). Close adherence to this methodology is especially important in the case of less technologically complex inventions, where the very ease with which the invention can be understood may prompt one "to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher." *Id.*

[3] Our case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references. *See,* e.g., *C.R. Bard, Inc. v. M3 Sys., Inc.,* 157 F.3d 1340, 1352, 48 USPQ2d 1225, 1232 (Fed.Cir.1998) (describing "teaching or suggestion or motivation [to combine]" as an "essential evidentiary component of an obviousness holding"); *In re Rouffet,* 149 F.3d 1350, 1359, 47 USPQ2d 1453, 1459 (Fed.Cir.1998) ("the Board must identify specifically ... the reasons one of ordinary skill in the art would have been motivated to select the references and combine them"); *In re Fritch,* 972 F.2d 1260, 1265, 23 USPQ2d 1780, 1783 (Fed.Cir.1992) (examiner can satisfy burden of obviousness in light of combination "only by showing some objective teaching [leading to the combination]"); *In re Fine,* 837 F.2d 1071, 1075, 5 USPQ2d 1596, 1600 (Fed.Cir.1988) (evidence of teaching or suggestion "essential" to avoid hindsight); *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.,* 776 F.2d 281, 297, 227 USPQ 657, 667 (Fed.Cir.1985) (district court's conclusion of obviousness was error when it "did not elucidate any factual teachings, suggestions or incentives from this prior art that showed the propriety of combination"). *See also Graham,* 383 U.S. at 18, 86 S.Ct. 684, 15 L.Ed.2d 545, 148 USPQ at 467 ("strict observance" of factual predicates to obviousness conclusion required). Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability--the essence of hindsight. *See,* e.g., *Interconnect Planning Corp. v. Feil,* 774 F.2d 1132, 1138, 227 USPQ 543, 547 (Fed.Cir.1985) ("The invention must be viewed not with the blueprint drawn by the inventor, but in the state of the art that existed at the time."). In this case, the Board fell into the hindsight trap.

[4][5] We have noted that evidence of a suggestion, teaching, or motivation to combine may flow from the prior art references themselves, the knowledge of one of ordinary skill in the art, or, in some cases, from the nature of the problem to be solved, *see Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc.,* 75 F.3d 1568, 1573, 37 USPQ2d 1626, 1630 (Fed.Cir.1996), *Para-Ordnance Mfg. v. SGS Importers Intern., Inc.,* 73 F.3d 1085, 1088, 37 USPQ2d 1237, 1240 (Fed.Cir.1995), although "the suggestion more often comes from the teachings of the pertinent references," *Rouffet,* 149 F.3d at 1355, 47 USPQ2d at 1456. The range of sources available, however, does not diminish the requirement for actual evidence. That is, the showing must be clear and particular. *See,* e.g., *C.R. Bard,* 157 F.3d at 1352, 48 USPQ2d at 1232. Broad conclusory statements regarding the teaching of multiple references, standing alone, are not "evidence." *E.g., McElmurry v. Arkansas Power & Light Co.,* 995 F.2d 1576, 1578, 27 USPQ2d 1129, 1131 (Fed.Cir.1993) ("Mere denials and conclusory statements, however, are not sufficient to establish a genuine issue of ***1000** material fact."); *In re Sichert,* 566 F.2d 1154, 1164, 196 USPQ 209, 217 (CCPA 1977) ("The examiner's conclusory statement that the specification does not teach the best mode of using the invention is unaccompanied by evidence or reasoning and is entirely inadequate to support the rejection."). In addition to demonstrating the propriety of an obviousness analysis, particular factual findings regarding the suggestion, teaching, or motivation to combine serve a number of important purposes, including:

(1) clear explication of the position adopted by the Examiner and the Board; (2) identification of the factual disputes, if any, between the applicant and the Board; and (3) facilitation of review on appeal. Here, however, the Board did not make particular findings regarding the locus of the suggestion, teaching, or motivation to combine the prior art references.

[6] All the obviousness rejections affirmed by the Board resulted from a combination of prior art references, e.g., the conventional trash or yard bags, and the Holiday and Shapiro publications teaching the construction of decorated paper bags. *See Dembiczak,* slip op. at 6-7. To justify this combination, the Board simply stated that "the Holiday and Shapiro references would have suggested the application of ... facial indicia to the prior art plastic trash bags." *Id.* at 18-19. However, rather than pointing to specific information in Holiday or Shapiro that suggest the combination with the conventional bags, the Board instead described in detail the similarities between the Holiday and Shapiro references and the claimed invention, noting that one reference or the other--in combination with each other and the conventional trash bags--described all of the limitations of the pending claims. *See id.* at 18-28. Nowhere does the Board particularly identify any suggestion, teaching, or motivation to combine the children's art references (Holiday and Shapiro) with the conventional trash or lawn bag references, nor does the Board make specific--or even inferential--findings concerning the identification of the relevant art, the level of ordinary skill in the art, the nature of the problem to be solved, or any other factual findings that might serve to support a proper obviousness analysis. *See, e.g., Pro-Mold & Tool,* 75 F.3d at 1573, 37 USPQ2d at 1630.

To the contrary, the obviousness analysis in the Board's decision is limited to a discussion of the ways that the multiple prior art references can be combined to read on the claimed invention. For example, the Board finds that the Holiday bag reference depicts a "premanufactured orange" bag material, see *Dembiczak,* slip op. at 21, finds that Shapiro teaches the use of paper bags in various sizes, including "large", see *id.* at 22-23, and concludes that the substitution of orange plastic for the crepe paper of Holiday and the paper bags of Shapiro would be an obvious design choice, see *id.* at 24. Yet this reference-by-reference, limitation-by-limitation analysis fails to demonstrate how the Holiday and Shapiro references teach or suggest their combination with the conventional trash or lawn bags to yield the claimed invention. *See Rouffet,* 149 F.3d at 1357, 47 USPQ2d at 1459 (noting Board's failure to explain, when analyzing the prior art, "what specific understanding or technical principle ... would have suggested the combination"). Because we do not discern any finding by the Board that there was a suggestion, teaching, or motivation to combine the prior art references cited against the pending claims, the Board's conclusion of obviousness, as a matter of law, cannot stand. *See C.R. Bard,* 157 F.3d at 1352, 48 USPQ2d at 1232; *Rouffet,* 149 F.3d at 1359, 47 USPQ2d at 1459; *Fritch,* 972 F.2d at 1265, 23 USPQ2d at 1783; *Fine,* 837 F.2d at 1075, 5 USPQ2d at 1600; *Ashland Oil,* 776 F.2d at 297, 227 USPQ at 667.

B

[7] The Commissioner of Patents and Trademarks ("Commissioner") attempts to justify the Board's decision on grounds ***1001** different from that relied upon by the Board, arguing that one of ordinary skill in the art would have been motivated to combine the references. Of course, in order to do so, the Commissioner must do what the Board did not do below: make specific findings of fact regarding the level of skill in the art ("a designer and manufacturer of trash and leaf bags, particularly one specializing in the ornamental and graphic design of such bags"), Resp't Br. at 14, the relationship between the fields of conventional trash bags and children's crafts, respectively ("[t]he artisan would also have been well aware of the ancillary, corollary, and atypical uses of 'trash' bags such as their application in hobby and art projects"), Resp't Br. at 15, and the particular features of the prior art references that would motivate one of ordinary skill in a particular art to select elements disclosed in references from a wholly different field ("a designer and manufacturer of trash and leaf bags would have recognized the paper bag in Shapiro to be a trash bag and therefore would have been motivated to combine it with the admitted prior art plastic trash and leaf bags to arrive at the claimed invention"), Resp't Br. at 15. The Commissioner also appears to cite additional references in support of his obviousness analysis, noting that at least two

design patents (in the record but not cited against the presently pending claims) teach the placement of "graphical information, including text, designs, and even facial indicia, to colored bags." Resp't Br. at 16. This new analysis, apparently cut from whole cloth in view of appeal, does little more than highlight the shortcomings of the decision below, and we decline to consider it. *See,* e.g., *In re Robertson,* 169 F.3d 743, 746, 49 USPQ2d 1949, 1951 (Fed.Cir.1999) ("We decline to consider [the Commissioner's] newly-minted theory as an alternative ground for upholding the agency's decision."); *In re Soni,* 54 F.3d 746, 751, 34 USPQ2d 1684, 1688 (Fed.Cir.1995); *In re Hounsfield,* 699 F.2d 1320, 1324, 216 USPQ 1045, 1049 (Fed.Cir.1983) (rejecting an "attempt[ ] by the Commissioner 'to apply a new rationale to support the rejection.' "); see also 35 U.S.C. § 144 (1994) (an appeal to the Federal Circuit "is taken on the record before The Patent and Trademark Office"). Because the Board has not established a prima facie case of obviousness, *see In re Bell,* 991 F.2d 781, 783, 26 USPQ2d 1529, 1531 (Fed.Cir.1993) ("The PTO bears the burden of establishing a case of prima facie obviousness."), we therefore reverse the obviousness rejections, and have no need to address the parties' arguments with respect to secondary factors.

III

[8][9] Dembiczak also asks this court to reverse the Board's rejection of the pending claims for obviousness-type double patenting, which is a judicially-created doctrine that seeks to prevent the applicant from expanding the grant of the patent right beyond the limits prescribed in Title 35. *See,* e.g., *In re Braat,* 937 F.2d 589, 592, 19 USPQ2d 1289, 1291-92 (Fed.Cir.1991); *In re Longi,* 759 F.2d 887, 892, 225 USPQ 645, 648 (Fed.Cir.1985). *See also* 35 U.S.C. § 154(a)(2) (Supp.1998) (discussing patent term). The doctrine prohibits claims in a second patent which define "merely an obvious variation" of an invention claimed by the same inventor in an earlier patent. *Braat,* 937 F.2d at 592, 19 USPQ2d at 1292 (quoting *In re Vogel,* 57 C.C.P.A. 920, 422 F.2d 438, 441, 164 USPQ 619, 622 (CCPA 1970)). Thus, unless a claim sought in the later patent is patentably distinct from the claims in an earlier patent, the claim must be rejected. *See In re Goodman,* 11 F.3d 1046, 1052, 29 USPQ2d 2010, 2015 (Fed.Cir.1993); *Vogel,* 422 F.2d at 441, 164 USPQ at 622. This question is one of law, which we review de novo. *See Goodman,* 11 F.3d at 1052, 29 USPQ2d at 2015; *Texas Instruments Inc. v. United States Int'l Trade Comm'n,* 988 F.2d 1165, 1179, 26 USPQ2d 1018, 1029 (Fed.Cir.1993).

***1002 A**

[10][11] The law provides that, in some very rare cases, obvious- type double patenting may be found between design and utility patents. *See Carman Indus., Inc. v. Wahl,* 724 F.2d 932, 939-40, 220 USPQ 481, 487 (Fed.Cir.1983) (noting that, while theoretically possible, "[d]ouble patenting is rare in the context of utility versus design patents"); *In re Thorington,* 57 C.C.P.A. 759, 418 F.2d 528, 536-37, 163 USPQ 644, 650 (CCPA 1969) (Double patenting between a design and utility patent is possible "if the features producing the novel aesthetic effect of a design patent or application are the same as those recited in the claims of a utility patent or application as producing a novel structure."); *In re Phelan,* 40 C.C.P.A. 1023, 205 F.2d 183, 98 USPQ 156 (CCPA 1953); *In re Barber,* 81 F.2d 231, 28 USPQ 187 (CCPA 1936); *In re Hargraves,* 53 F.2d 900, 11 USPQ 240 (CCPA 1931). In these cases, a "two-way" test is applicable. *See Carman,* 724 F.2d at 940, 220 USPQ at 487. Under this test, the obviousness-type double patenting rejection is appropriate only if the claims of the two patents cross-read, meaning that "the test is whether the subject matter of the claims of the patent sought to be invalidated would have been obvious from the subject matter of the claims of the other patent, and vice versa." *Id.,* 724 F.2d 932, 220 USPQ at 487. *See also Braat,* 937 F.2d at 593, 19 USPQ2d at 1292 (explaining two-way test).

B

In making its double patenting rejection, the Board concluded that all but one of the pending claims of Dembiczak's utility application would have been merely an obvious variation of the claims of the earlier-issued design patents--the Dembiczak '023 and '254 references--in light of the Holiday reference. The remaining claim, dependent claim 49, was judged obvious in light of the combination of the Dembiczak design patents, Holiday, and the Kessler reference.

[12][13] Acknowledging that the two-way test was required by *Carman,* 724 F.2d at 940, 220 USPQ at 487, the Board concluded that "the design claimed in each of appellants' design patents does not exclude the features pertaining to the construction and color of the bag, the use of a plastic material for making the bag, the size or thickness of the bag ... or the use of various types of filling material.... The particular details of the facial indicia would have been a matter of design choice as evidenced by the Holiday handbook," and that therefore, in view of Holiday, the claims of the design patents were obvious variants of the pending utility patent claims. *See Dembiczak,* slip op. at 11. We disagree. In order for a design to be unpatentable because of obviousness, there must first be a basic design reference in the prior art, the design characteristics of which are "basically the same as the claimed design." *In re Borden,* 90 F.3d 1570, 1574, 39 USPQ2d 1524, 1526 (Fed.Cir.1996); *In re Rosen,* 673 F.2d 388, 391, 213 USPQ 347, 350 (CCPA 1982). The phrase "having facial indicia thereon" found in the claims of the pending utility application is not a design reference that is "basically the same as the claimed design." *Borden,* 90 F.3d at 1574, 39 USPQ2d at 1526. In fact, it describes precious little with respect to design characteristics. The Board's suggestion that the design details were simply "a matter of design choice" evinces a misapprehension of the subject matter of design patents. *E.g., Carman,* 724 F.2d at 939 n. 13, 220 USPQ at 486 n. 13 ("Utility patents afford protection for the mechanical structure and function of an invention whereas design patent protection concerns the ornamental or aesthetic features of a design.") Indeed, we note that the two design patents at issue here--the Dembiczak '023 and '254 patents--were considered nonobvious over each other, and were even the subject of a restriction requirement. *See* 35 U.S.C. § 121 (1994) ("If two or more independent and distinct inventions are claimed in one ***1003** application, the Commissioner may require the application to be restricted to one of the inventions."); 37 C.F.R. § 1.142. The position adopted by the Board--that a textual description of facial indicia found in the claims of the utility patent application makes obvious the specific designs claimed in the (patentably distinct) Dembiczak design patents--would presumably render obvious, or even anticipate, all design patents where a face was depicted on a bag. But this, of course, is not the law; the textual description cannot be said to be a reference "basically the same as the claimed design," of the design patents at issue here. *Borden,* 90 F.3d at 1574, 39 USPQ2d at 1526 (internal quotation marks omitted). The Board's conclusion of obviousness is incorrect.

Because we find that the Board erred in concluding that the design patents were obvious variants of the pending utility claims, we need not address the other prong of the two-way double patenting test--whether the pending utility claims are obvious variations of the subject matter claimed in the design patents. *See Carman,* 724 F.2d at 939, 220 USPQ at 487 (both prongs of the two-way test required for obviousness-type double patenting). The double patenting rejections are reversed.

IV

Because there is no evidence in the record of a suggestion, teaching, or motivation to combine the prior art references asserted against the pending claims, the obviousness rejections are reversed. In addition, because the Board misapprehended the test for obviousness-type double patenting, and because the pending utility claims do not render obvious the design patents, the double patenting rejections are also reversed.

REVERSED.

175 F.3d 994, 50 U.S.P.Q.2d 1614

Briefs and Other Related Documents (Back to top)

• 1998 WL 34099977 (Appellate Brief) Reply Brief for Appellants Anita Dembiczak and Benson Zinbarg (Dec. 04, 1998) (Appellate Brief) Reply Brief for Appellants Anita Dembiczak and Benson Zinbarg (Dec. 04, 1998) Original Image of this Document (PDF)

• 1998 WL 34099980 (Appellate Brief) Brief for Appellee Commissioner of Patents and Trademarks (Nov. 16, 1998) (Appellate Brief) Brief for Appellee Commissioner of Patents and Trademarks (Nov. 16, 1998) Original Image of this Document (PDF)

175 F.3d 994
50 U.S.P.Q.2d 1614
(Cite as: 175 F.3d 994)

• 1998 WL 34099981 (Appellate Brief) Brief for Appellants Anita Dembiczak and Benson Zinbarg (Sep. 14, 1998) (Appellate Brief) Brief for Appellants Anita Dembiczak and Benson Zinbarg (Sep. 14, 1998) Original Image of this Document with Appendix (PDF)

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▷

United States Court of Customs and Patent Appeals.

In re John W. KELLER, Jr., Reese S. Terry, Jr., and Gomer L. Davies.

Appeal No. 80-573.

Feb. 12, 1981.

Applicant appealed from decision of Patent and Trademark Office Board of Appeals in reissue application serial No. 865,610 for cardiac pacer having a digital counter, rejecting all claims in application. The United States Court of Customs and Patent Appeals, Nies, J., held that: (1) Board's determination that claims in application for reissuance of Patent No. 3,557,796 for cardiac pacer having digital counter were unpatentable in view of prior art was supported by sufficient evidence; (2) declaration made to support application requesting reissuance of patent failed to properly incorporate by reference citation of prior art; and (3) passage in declaration fairly complied with requirement that applicant specify "the errors or what might be deemed to be errors relied upon, and how they arose or occurred" and requirement that applicant state that said errors, if any, arose without deceptive intention on part of applicant.

Modified.

West Headnotes

[1] Patents ⚿328(2)
291k328(2) Most Cited Cases
(Formerly 291k328(4))

3,557,796. Taken collectively, reference teachings of patent for transistorized, implantable cardiac pacer for regulating animal heart, patent for nonimplantable cardiac pacer for regulating a heart and patent for heart stimulater used in studies of atrioventricular conduction system of mammalian heart established prima facie case of obviousness of Patent No. 3,557,796 for cardiac pacer having digital counter, and obviousness of patent was unrebutted by affidavit of expert in cardiac pacer art, which only attacked third reference, and thus sufficient evidence supported decision of Patent and Trademark Office Board of Appeals rejecting claims in application requesting reissuance of patent. 35 U.S.C.A. § 103.

[2] Patents ⚿141(1)
291k141(1) Most Cited Cases

To justify combining reference teachings in support of rejection of claims in application requesting reissuance of patent, it is not necessary that device shown in one reference can be physically inserted into device shown in the other. 35 U.S.C.A. § 103.

[3] Patents ⚿16(3)
291k16(3) Most Cited Cases
(Formerly 291k18)

Test for obviousness of patent is not whether features of secondary reference may be bodily incorporated into structure of primary reference; nor is it that claimed invention must be expressly suggested in one or all of the references; rather, test is what combined teachings of references would have suggested to those of ordinary skill in the art. 35 U.S.C.A. § 103.

[4] Patents ⚿140
291k140 Most Cited Cases

Declaration made to support application requesting reissuance of patent failed to properly incorporate by reference citation of prior art, where citation was not subscribed by applicant and did not include personal declaration of applicant. Patent Office Practice Rule 175(a), 35 U.S.C.A. App.

[5] Patents ⚿140
291k140 Most Cited Cases

Passage in declaration in support of application requesting reissuance of patent fairly complied with requirement that applicant specify "the errors or

what might be deemed to be errors relied upon, and how they arose or occurred" and requirement that applicant state that said errors, if any, arose without deceptive intention on part of applicant, where passage was remarkably close to what subsequently appeared in manual of patent examining procedure with respect to content of declaration for that purpose. Patent Office Practice Rules 175(a)(5, 6), 35 U.S.C.A. App.

Patents ⚿328(2)
291k328(2) Most Cited Cases

3,557,796. Cited.

***414** Henry D. Pahl, Jr., Boston, Mass., Gilbert H. Hennessey, Washington, D. C., for appellants.

Joseph F. Nakamura, Sol., Patent & Trademark Office, Thomas E. Lynch, Washington, D. C., of counsel.

Before MARKEY, Chief Judge, and RICH, BALDWIN, MILLER, and NIES, Judges.

NIES, Judge.

This appeal is from the decision of the Patent and Trademark Office (PTO) Board of Appeals (board) in reissue application serial No. 865,610, filed December 29, 1977,[FN1] ***415** for "Digital Counter Driven Pacer." Claims 1, 2, 6, 7, and 9-16 (all of the claims in the application) stand rejected on the ground of a defective reissue declaration, and claims 1, 2, 6, 7, 9-11, 13, and 14 are rejected on the ground of obviousness in view of the following references:

> FN1. The application requests reissuance of U.S. Patent No. 3,557,796 issued January 26, 1971, on application serial No. 805,714, filed March 10, 1969, by Cordis Corporation, the assignee. Protests were filed against the reissue application by Cardiac Pacemakers, Inc. (CPI) and by Norman H. Stepno of the firm of Bacon & Thomas pursuant to the provisions of 37 CFR 1.291. A brief amicus curiae for protestor CPI was filed in this appeal. Two cases have been filed in the United States District Courts involving appellant's '796 patent:
> (1) Cordis Corp. v. Cardiac Pacemakers, Inc. and Edward J. Luczek, United States District Court, District of Massachusetts, Civil Action No. 77-3044- F (infringement action); and
> (2) Cardiac Pacemakers, Inc. v. Cordis Corp., United States District Court, District of Minnesota, Fourth Division, Civil Action No. 4-77-427 (declaratory judgment action).

Inventor	U.S. Patent No.	Issue Date
Keller. Jr. (Keller)	3,253,596	May 31, 1966
Berkovits	3,345,990	Oct. 10, 1967

Walsh and Moore (Walsh), The American Journal of Medical Electronics, First Quarter, 1966, pages 29-34.

Claim 12 is allowable over the art of record but is objected to on the ground that the claim depends from a rejected claim. Claims 15 and 16 are allowable over the art of record.[FN2] We affirm in part and reverse in part.

FN2. In addition to Keller, Berkovits, and Walsh, numerous other references were before the examiner. The examiner indicated in an Office Action dated May 8, 1978, however, that these other references were not any more pertinent than Keller, Berkovits, and Walsh.

Claims 1, 2, 6, 7, and 9-16 [FN3] are rejected under 35 U.S.C. s 251 on the ground that the declaration made by applicant to support the reissue application does not particularly specify the prior art being brought to the attention of the examiner as required by 37 CFR 1.175(a)(4), does not particularly specify the errors relied upon by applicant and how the errors arose as required by 37 CFR 1.175(a)(5), and does not state that the errors arose "without any deceptive intention" on the part of applicant as required by 37 CFR 1.175(a)(6). [FN4]

FN3. Claims 1-12 were included in the reissue application as filed. By preliminary amendment claim 1 was amended and new claims 13 and 14 added. By subsequent amendment claims 3, 4, 5, and 8 were cancelled and new claims 15 and 16 added, the latter two claims reciting in independent form the same subject matter of cancelled dependent claims 5 and 8, respectively. Claims 9-12 were not amended during prosecution of the reissue application.

FN4. 37 CFR 1.175 (1980) reads, in pertinent part:
s 1.175 Reissue oath or declaration.
(a) Applicants for reissue, in addition to complying with the requirements of the first sentence of s 1.65, must also file with their applications a statement under oath or declaration as follows:
(4) When the applicant is aware of prior art or other information relevant to patentability, not previously considered by the Office, which might cause the examiner to deem the original patent wholly or partly inoperative or invalid, particularly specifying such prior art or other information and requesting that if the examiner so deems, the applicant be permitted to amend the patent and be granted a reissue patent.
(5) Particularly specifying the errors or what might be deemed to be errors relied upon, and how they arose or occurred.
(6) Stating that said errors, if any, arose "without any deceptive intention" on the part of the applicant.
(24 FR 10332, Dec. 22, 1959, as amended at 29 FR 18503, Dec. 29, 1964; 34 FR 18857, Nov. 26, 1969; 42 FR 5594, Jan. 28, 1977)

Claims 1, 2, 6, 7, 9, 10, 11, 13, and 14 are rejected as unpatentable in view of Keller taken with Walsh. Claims 1 and 2 are further rejected as unpatentable in view of Berkovits taken with Walsh. The statutory basis of these rejections is 35 U.S.C. s 103.

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The Invention

The claimed invention is a cardiac pacer having a digital counter.

As background, the specification explains:

> In the normal heart, electrical signals are generated and appear in the atrium at a rate of approximately 60 to 120 times per minute, depending on such factors as body size and amount of physical exertion. Approximately 0.1 second after such a signal has appeared in the atrium, ***416** it is transferred to the ventricle of the heart, which reacts to the stimulation by contracting. This contraction forces blood from the ventricle into the arterial system and thence to the entire body. The delay between the appearance of an electrical signal in the atrium and its appearance in the ventricle is called the A-V delay. Following the contraction of the ventricle, there is an insensitive period lasting about 0.4 second, during which time the heart is unresponsive to electrical pulses. This time is referred to as the refractory delay period.
>
> A common type of heart failure is irregularity in the generation of atrial potentials. In some cases, these potentials appear at only a low rate; in others, they cease entirely for extended periods though at other times the signals may be generated with perfect regularity. It is in persons suffering from this kind of cardiac disorder that a standby or so-called demand mode pacer is used. This device is designed to apply stimulating pulses to the ventricle, by means of an electrode implanted therein, only when the heart fails to generate pulses spontaneously. When natural pulses regularly appear, the pacer provides no stimulation; when they appear irregularly, the pacer adjusts its timing to integrate its artificial pulses with the natural ones. This type of pacer is often provided with circuitry which stimulates the refractory delay period of the heart. The reason for including such delay circuitry is that a spontaneous electrical signal which appears a short time after delivery of an artificial pulse is ineffective to pump blood, either because the natural refractory period of the heart caused the heart to ignore the spontaneous pulse or because the ventricle has not had time following the previous beat to be refilled with blood. A simulated refractory period causes the pacer likewise to ignore these ineffective beats. The device's timing continues just as if the beats had never occurred.
>
> Another form of heart disease is the so-called A-V block in which the patient's heart undergoes normal or near-normal atrial contraction but the atrial signal is not transferred to the ventricle. With such a patient, it is desirable to use a so-called synchronous pacer which detects atrial signals and supplies to the ventricle a stimulating pulse about 0.1 second later, a period which constitutes a simulated A-V delay. In the absence of detected atrial signals, the pacer supplies ventricular pulses at a fixed rate. The synchronous pacer, like the demand pacer, is often provided with refractory delay simulation.

Summarizing the invention, the specification states:

> (A) cardiac pacer according to the present invention times various events and delays by means of a digital counter which is driven by an oscillator operating at a frequency which is a relatively large multiple of a normal heartbeat rate. A cardiac stimulating pulse is generated at a predetermined point in the count. Thus, if the counter cycles repetitively, the heart is stimulated at a predetermined fixed rate. To provide demand mode operation, the counter is reset in response to spontaneous cardiac signals thereby to prevent stimulation when the heart is functioning normally. To provide synchronous mode operation, the counter is reset to a point preceding the stimulation count by an amount which simulates a normal A-V delay.
>
> The use of digital count down circuitry permits both the various delays and the durations of the stimulating pulses to be accurately timed. Further, by counting down from a relatively high frequency, an oscillator having a relatively short duty cycle may be used so as to reduce battery drain. Further, the use of a relatively short oscillator period permits timing components, e. g., capacitors, of relatively small size to be used.

A block diagram of a cardiac pacer, according to the present invention, appears below:

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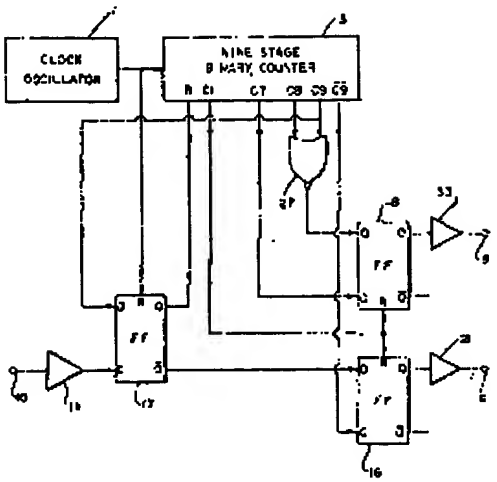

[FF indicates D-TYPE FLIP-FLOP]

The specification indicates that if the pacer is to operate in the demand mode in a particular patient, an output electrode implanted in the patient's heart at a location suitable for stimulating ventricular contractions is connected to output terminal 6 of the pacer. If the pacer is to operate in the synchronous mode in a particular patient, an output electrode implanted in the patient's heart at a location suitable for stimulating ventricular contractions is connected to output terminal 9 of the pacer.

According to the specification, for demand mode operation an input electrode implanted to detect ventricular signals of the patient's heart is connected to input terminal 10 of the pacer. For synchronous mode operation, an input electrode implanted to detect atrium signals of the patient's heart is connected to the input terminal 10. "Cardiac signals applied to the input terminal 10 are amplified and shaped by means of an amplifier 11 so as to be squared into waveforms suitable for use with digital circuitry, as is understood by those skilled in the art."

The timing of the different events occurring in the operation of appellant's pacer is provided by a digital counter 3.

> The counter is driven by an oscillator 1 which establishes the time base. As illustrated, counter 3 comprises a nine stage binary divider and the oscillator 1 runs at a frequency which is relatively high with respect to the contemplated range of heartbeat rates or frequencies....
> As is conventional, counter 3 provides a two-stage output signal for each stage of binary division ....
> As is also conventional, the counter 3 runs cyclically, that is, the states of the binary output signals pass through a sequence which repeats after all the possible combinations have been utilized.... Further, the counter may at will be reset to a predetermined starting point by the application of a reset signal to a reset terminal, designated R. The starting point of the counter is considered herein to be the zero count and the various possible states or counts are considered to be zero through 511.[FN5]
>
> FN5. Consequently, the counter counts as follows: 0, 1, 2, 3, ..., 509, 510, 511, 0, 1, 2, ..., that is, the count changes from "511" to "0".

In describing operation of the pacer in the demand mode, the specification states that:

> ... if the patient's heart is beating normally at a rate which is more than the free running rate of the pacer, i. e. about 70 beats per minute, and not more than twice that rate, i. e. about 140 beats per minute, the counter 3 will be reset to its zero count by each natural heartbeat before a count of 511 is reached. Thus, the patient's heart will not be stimulated at all if it is beating spontaneously within this 2-to-1 range of rates. However, if no spontaneous heartbeat is detected between count 256 and count 511, the pacer will then stimulate the patient's heart at the end of the full count period, that is, after a period which corresponds to the 70 pulse per second free running rate. In other words, the difference between the starting point count and the end of the counting sequence establishes a maximum interval between heartbeats. Accordingly, if the spontaneous heart signals disappear intermittently, the pacer ***418** will integrate its operation with the normal heartbeat.

In describing operation of the pacer in the synchronous mode, the specification states:

> The resetting of counter 3 is controlled in response to detected signals as described previously. Thus, the counter is reset to its zero

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count if an atrial signal is detected from count 256 through count 511. A stimulating pulse is then generated at output terminal 9 when count 64 is reached. The delay provided by the interval between the resetting and the 64 count is about 108 milliseconds which satisfactorily simulates the normal A-V delay. Thus the heart is stimulated with timing appropriate for synchronous pacer operation.
If no atrial signals at all are detected, the counter 3 will run cyclically as described previously and stimulating pulses will be generated at a fixed rate, one pulse being generated each time the counter 3 passes the 64 count.

The specification describes the digital timing circuit in more detail than set forth above. The claims rejected on prior art, however, do not recite such detail. Claims 1 and 13 are illustrative:

1. Cardiac pacer apparatus comprising:
an oscillator providing a pulsating signal at a preselected frequency, which preselected frequency is a relatively large multiple of a normal heart beat rate;
a cyclically operating digital counter means for counting the pulsations of said pulsating signal;
means controlled by said counter for generating a cardiac stimulating potential when said counter reaches a predetermined count;
means for detecting a naturally occurring heart beat; and
means for setting said counter to a preselected value when a naturally occurring heart beat is detected. (Paragraphing added.)

13. Cardiac pacer apparatus comprising:
an oscillator providing a pulsating signal at a preselected frequency, which preselected frequency is a relatively large multiple of a normal heart beat rate;
a cyclically operating digital counter means for counting the pulsations of said pulsating signal;
means controlled by said counter for generating a cardiac stimulating potential when said counter reaches a predetermined count;
means for detecting cardiac signals generated during a heart beat; and
means responsive to such detected cardiac signals for setting said counter to a starting point count which precedes said predetermined count by a number corresponding to a preselected maximum interval between successive heartbeats whereby a stimulating potential is generated only if said preselected maximum interval elapses between heart beats. (Paragraphing added.)

The References
The Keller '596 Patent

Keller relates to a transistorized, implantable cardiac pacer for regulating an animal heart. The specification states that a pacer according to the Keller invention includes:
... sensing means responsive to a physiological heart pacing signal for producing a trigger signal, means for delaying said trigger signal for a period substantially equal to a normal atrial-ventricular delay,[FN6] a two-state free running oscillator one state of which can be terminated by the arrival of a delayed trigger signal and the other state of which is unaffected by the arrival of a signal, means responsive to the return of said oscillator to said one state for producing ventricular stimulation, whereby the minimum rate at which the pacer operates is determined by the ***419** natural period of the oscillator and the maximum rate at which said pacer can operate is determined by the natural duration of said other state, the natural durations of each of said states being independently predeterminable, and the arrival of delayed trigger signals at frequencies between said minimum and maximum synchronously controls said oscillator.

FN6. According to Keller, the atrial-ventricular (A-V) delay is approximately two-tenths of a second in man, and less in smaller animals.

Identifying the elements described in the Keller patent, the examiner found the Keller pacer includes:
a pulse generator (comprising blocking oscillator 40, stimulating pulse generator 50, and output amplifier 60);
an analog time base circuit included in the pulse generator for generating a cardiac stimulating potential at a predetermined time (comprising transistors T5, T6);
means for detecting cardiac signals (comprising amplifying circuit 10,20);

reset means for setting the analog time base circuit to a starting point (comprising diode D2); and
means for inhibiting the resetting during a preselected refractory delay period which ends at a time after the starting time but before the stimulus generating time (comprising delay circuit 30).

Appellant has not disputed these findings.

The Keller pacer can operate in a synchronous mode and in an asynchronous free-running mode. In the synchronous mode, an atrial signal is sensed, amplified, and processed, and a ventricular stimulation pulse produced and applied to the heart a predetermined time after the occurrence of the atrial signal. This predetermined time corresponds approximately to the normal A-V delay. If atrial signals are sensed to occur at a dangerously high rate, the pacer operates in the synchronous mode to produce and apply ventricular stimulation pulses at a predetermined maximum rate. If atrial signals are not sensed or are too weak for synchronization purposes, the pacer operates in the asynchronous free-running mode to produce and apply ventricular stimulation pulses at a predetermined minimum rate. [FN7]

FN7. The minimum rate is 60 pulses per minute for a human patient.

Both the sensing of the atrial signal and the application of ventricular stimulation are accomplished by electrodes implanted in the patient's heart.

The Berkovits '990 Patent

Berkovits relates to a cardiac pacer for regulating a heart. The specification states that a pacer according to the Berkovits invention includes: means for accurately monitoring the beating action of a human heart; means for providing corrective electrical stimulation of the beating action of an abnormal heart; and means for automatically effecting such corrective heart stimulation only where required as determined by the means for monitoring the heart. The Berkovits pacer functions to "furnish stimulation to an abnormal heart in such a manner that heartbeats are individually stimulated and closely integrated with natural heartbeats."

Identifying the elements described in the Berkovits patent, the examiner found the Berkovits pacer includes:
an analog time-base pulse generator (comprising heart stimulating means 12 and pulse generating means 18);
means for detecting a naturally occurring heartbeat (comprising detecting means 14 and amplifying means 16); and
means for restarting the timing period when a naturally occurring heartbeat is detected (comprising triode clipper 122).

Appellant has not disputed these findings.

The Berkovits pacer is not implantable. The monitoring means 10 includes electrocardiograph means 14 for detecting electrical signals developed by the heart during natural heartbeat action, vacuum tube amplifier means 16 for amplifying these natural heart signals, vacuum tube pulse generating means 18 responsive to the amplified signals for sending control signals to vacuum tube heart stimulating means 12, and may also include oscilloscope means 20 and audible signal means 22 for providing visual ***420** and audible indications of the occurrence of natural and stimulated heartbeats.

The heart stimulator 12 is equipped with a double-pole triple-throw switch 177 which permits manual selection of the mode of operation of the heart stimulator. Berkovitz states:
When the movable switch arms 178,180 (of switch 177) are set on the fixed contacts 182,184, respectively, the heart stimulator will not be operative.... (W)hen the movable arms are set on the fixed contacts 186,188, the heart stimulator is adapted to provide a continuous series of heart stimulating electrical impulses at a predetermined rate which is independent of natural heartbeats occurring at the same time.... (W)hen the movable arms are set on the fixed contacts 190,192 ... the heart stimulator is adapted to provide heart-stimulating electrical impulses only in closely integrated relation to natural heartbeats ... so that stimulated and natural heartbeats can each contribute to maintenance of a predetermined heartbeat rate.
Electrodes 218 of any conventional type ... can be

> employed for applying a relatively large heart stimulating pulse to the patient's heart from outside the patient's body whereas the electrodes 220 can be surgically connected to the patient's heart for applying a relatively smaller electrical impulse directly to the patient's heart when desired.

Variable resistor 210 of the heart stimulating means 12 is used to selectively vary the amplitude of the heart stimulating pulse to be applied to the heart through electrodes 218 and 220.

We note that, in addition to the mode selection switch 177 and the stimulating pulse amplitude adjustment control 210 included in the heart stimulating means 12, the amplifier means 16 includes a polarity-reversing switch 32, a bias circuit switch 62, a variable voltage divider 116 which serves as a center control for the oscilloscope means 20, and a variable voltage divider 106,108 which serves as an amplifier gain control. It is apparent from the Berkovits disclosure as a whole that these switches and variable circuit elements are operator controlled.

The Walsh and Moore Article

Walsh relates to a stimulator driving unit for the controlled stimulation of the heart of a mammal. The disclosed driver includes a digital timing circuit. Walsh states:

> A digital timing system was used since it provides a higher degree of accuracy and resetability than the R-C type circuits used in conventional stimulators. In this system, a crystal-controlled, time-base generator provides a standard from which to derive the various intervals. A crystal frequency (of 0.1 megahertz) was chosen to provide a 10-u sec time base. The output of this circuit was amplified, shaped and fed to a series of six digital counting modules that make up the timing chain controlling intervals between stimuli.

The examiner found that Walsh discloses:

> ... the conventional expedient of providing a digital time base means for a medical stimulator by employing an oscillator having a frequency much higher, such (as) a relatively large multiple of the stimulation pulse frequency and counting means to produce a stimulating pulse at the desired frequency.

Appellant has not disputed these findings.

The Rejections
Reissue Declaration Rejections

The examiner rejected claims 1, 2, 6, 7, 13-16 (the claims that were either amended or added during prosecution of the reissue application) under 35 U.S.C. s 251 as based on an insufficient reissue declaration. The declaration which accompanied the reissue application reads, in pertinent part:

> I, William P. Murphy, Jr., Chairman of the Board of Directors of Cordis Corporation, declare
> (1.) that subsequent to the issuance of U.S. Letters Patent No. 3,557,796, applicant ***421** has, in connection with the prosecution of corresponding foreign patent applications, been made aware of prior art relevant to patentability not previously considered by the Patent Office, which prior art might cause the Examiner to deem the original patent wholly or partly inoperative or invalid;
> (2.) that this new prior art is particularly specified in a citation of prior art accompanying this reissue application;
> (3.) that, to the extent the (preliminary) amendment (filed herewith) might be deemed to correct errors in the original patent, such errors arose without any deceptive intent or purpose upon the part of applicant; ...
> /s/ William P. Murphy, Jr.
> Date: Dec. 24, 1977

The "citation of prior art" referred to in the declaration and filed with the declaration reads, in pertinent part:

> The following prior art has become known to applicant subsequent to the issuance of the original Letters Patent No. 3,557,796 and is being brought to the attention of the Patent and Trademark Office for its consideration in connection with this reissue application.
> The references are:
> Copies are enclosed.
> /s/ (Attorney for Applicant)
> December 23, 1977

In making these rejections, the examiner stated that "applicants (sic) have not particularly specified all the changes in the claims (as set forth in the preliminary amendment) as the errors nor have they stated how they (the errors) arose or occurred."

The board affirmed the examiner and stated that

> the declaration fails to particularly specify the newly discovered prior art. Reference to another paper to be filed in the application is inadequate to fulfill this requirement.

The board further indicated that the declaration not only failed to comply with 37 CFR 1.175(a)(4), but also failed to comply with 37 CFR 1.175(a)(5) and (a) (6).[FN8] Accordingly, pursuant to 37 CFR 1.196(b), [FN9] the board rejected claims 9-12 (the claims that were neither amended nor added during prosecution of the reissue application) under 35 U.S.C. s 251 as based on a declaration which does not comply with 37 CFR 1.175(a)(4), (a)(5), and (a)(6).

FN8. See note 4, supra.

FN9. 37 CFR 1.196 (1980) reads, in pertinent part:
s 1.196 Decision by the Board of Appeals.
(b) Should the Board of Appeals have knowledge of any grounds not involved in the appeal for rejecting any appealed claim, it may include in its decision a statement to that effect with its reasons for so holding, which statement shall constitute a rejection of the claims.
(24 FR 10332, Dec. 22, 1959, as amended at 42 FR 5595, Jan. 28, 1977)

Prior Art Rejections

The examiner rejected claims 1, 2, 6, 7, 9-11, 13, and 14 as obvious in view of Keller taken with Walsh. He stated:

> The claims define over the Keller, Jr. patent in the recitation of a digital time base pulse generator. Walsh et al discloses in Figure 3 the conventional expedient of providing a digital time base means for a medical stimulator by employing an oscillator having a frequency much higher, such as a relatively large multiple of the stimulation pulse frequency and counting means to produce a stimulating pulse at the desired frequency.
> Providing an oscillator and counter-type digital time base generator for its analog equivalent in the Keller, Jr. et al device amounts to an obvious substitution to one of ordinary skill in the art after consideration of the prior art taken as a whole.

*422 The examiner further rejected claims 1 and 2 as obvious in view of Berkovits taken with Walsh. He stated that it would have been obvious in view of the teachings of Walsh to employ digital timing circuitry with a relatively high frequency oscillator in the Berkovits pacer in place of the analog timing circuitry.

Neither Keller nor Berkovits nor Walsh were cited during prosecution of the original patent application.

Rebuttal Evidence

To rebut the prima facie case of obviousness established by the examiner, appellant filed an affidavit of Jozef K. Cywinski, Ph.D. This affidavit, according to appellant, "concerns itself mainly with the question of whether the Walsh et al article suggest (sic) the use of digital timing in a cardiac pacer ...."

Dr. Cywinski, an expert in the cardiac pacer art, states in his affidavit:

> In 1967 ... I met Neil Moore (co-author of Walsh) and learned of a digital timing unit which he and Leon Walsh had built and were using for their stimulation studies.... I have been shown a 1966 article (Walsh).... I recognized the apparatus referenced therein as being that which was described to me (by Moore) in 1967 or 1968. At this time (1967-1968), I was also aware of other medical research devices employing digital counters as timing chains.
> Even before this period, it was becoming increasingly common to employ digital timing techniques in research environments. The digital approach was indicated where precise incremental timing was needed or where considerable flexibility and repeatable adjustments were needed. These characteristics are typically needed in investigatory or research projects.
> Of the various prior art laboratory timing devices employing digital counting chains, it should also be noted that these were largely operator-controlled devices....
> Although I was thus quite familiar with the use of digital timing devices as laboratory instruments, I was nonetheless impressed with the novelty of the

digital cardiac pacer, being developed by Cordis, which was first described to me by John Walter Keller in about 1970 in a form of a personal communication. This pacer is described and claimed in U.S. Patent No. 3,557,796. At the time, I did not regard the approach described to me by Keller as being obvious. Rather, I believed that the approach would not have been obvious even to try since the complexity would seem to outweigh the advantages of digital timing. Further, the usual advantages, i. e., exceptional precision and incremental adjustability, were not ones which would appear to have particular utility in cardiac pacers. Rather, the simplicity of the usual analog timing circuit would seem to offer the clear advantages. I should note that I was, at that time, also familiar with the Cordis synchronous pacer which is disclosed and claimed in Keller Patent No. 3,253,596 and also the American Optical standby pacer, an earlier version of which is disclosed and claimed in Berkovits Patent No. 3,345,990.

The Cordis pacer is a therapeutic device rather than a research tool and, further, is interactive with the spontaneous action of the patient's heart. The device disclosed in the Moore et al article does not in any similar way respond to naturally occurring heart signals nor am I aware of any other prior art device in which a digital counting chain is preset in response to a naturally occurring heartbeat. * * * The heart being stimulated (in Walsh) is an object of study, not an organism being aided in its natural function. * * *

I do not find in the Walsh et al article any suggestion that these attributes (higher degree of accuracy and resentability when digital timing circuitry is used instead of analog timing circuitry) ***423** would be advantageous in a cardiac pacer.

A cardiac pacer is implanted in the human body to monitor and control ... the heart ... to continue the life of the patient ... with no wire connections to the world outside the patient's body.

(O)ne skilled in the art at the time of the Keller et al invention would not expect that it would be either desirable or advantageous to use complicated digital circuitry. Nor would one appreciate the great advantage of the digital approach, an approach which in practice has now become recognized by the industry. (Emphasis added.)

No other rebuttal evidence was offered. The examiner did not present any additional evidence in response to the affidavit.

Board Opinion

The board unanimously affirmed the rejection of claims 1, 2, 6, 7, and 13-16 under 35 U.S.C. s 251, and entered the rejection of claims 9-12 on the same ground.

The board was divided regarding the art rejections. Two members found the affidavit insufficient to overcome the prima facie case of obviousness established by the examiner and affirmed these rejections. The majority opinion states that the affiant's statements "that he was impressed with the novelty, did not regard the approach as being obvious and believed that the approach would not have been obvious even to try ... (are) statements (of) affiant's opinion on the ultimate legal issue and, therefore, are entitled to little weight (citations omitted)."

Regarding Dr. Cywinski's factual statements about the prior art, the opinion states:

The points made by affiant are well-taken but, to a large extent not germane to the claimed subject matter or the rejections under section 103.... (The affiant) addressed himself to the intended purpose, and, undoubtedly the actual commercial purpose, of the claimed subject matter. However, the claims are not directed to a therapeutic cardiac pacer which is to be implanted into a human body to monitor and control the heart in order to continue the life of the patient. The claims are broad enough to encompass a device for use on animals in a research laboratory ....

The board held:

Keller and Berkovits both disclose cardiac pacers which function in a manner similar to the appellants' pacer using an analog timer. Walsh discloses a heart stimulator wherein a digital timer is used. The motivation for using a digital timer in place of the analog timer in the Keller and Berkovits pacers is found in Walsh where it is stated, at page 30, that digital timers provide a higher degree of accuracy as compared with analog timers.

The rejections under section 103 are predicated on replacing the analog R- C timing means in

> Keller and Berkovits with an equivalent digital timer; not on combining the Walsh device with the Keller or Berkovits pacer or substituting the Walsh device for the R-C timing circuit of Keller or Berkovits.... The fact that the Walsh reference makes no mention of pacing a heart or that the Walsh device does not respond to naturally occurring heart signals is immaterial. The Walsh reference is only relied on for the teaching of digital timing in an analogous environment; the other features are disclosed in Keller and Berkovits. (Emphasis added.)

The third member of the board found the affidavit sufficient to overcome the prima facie case of obviousness established by the examiner. He stated that the affiant makes "several pertinent statements which must be considered as facts because they are being made by an expert and cannot be dismissed as mere opinion." He also stated that "to say in the claims that the cardiac pacer is to be implanted in a human being to monitor and control the heart for the purpose of sustaining life would be, in my opinion, redundant."

***424** OPINION

Appellant does not argue that any features of the rejected claims other than the use of digital timing are not disclosed in Keller and Berkovits. Thus, the sole issue regarding the prior art rejections is essentially whether the references, taken collectively, would have suggested the use of digital timing in a cardiac pacer to those of ordinary skill in the art at the time the invention was made.[FN10]

> FN10. Miniaturization of the physical size of the circuitry used in a cardiac pacer, the use of integrated circuit techniques in such circuitry, the elimination of hand-wired circuit interconnections in such circuitry, and so forth are not in issue. These features are not claim limitations. Moreover, appellant admits that
> ... integrated circuits were used in analog pacers and an integrated circuit amplifier was incorporated in the first digitally timed cardiac pacer made by Cordis Corporation .... The choice between analog timing and digital timing was thus made largely independently of the move to integrated circuits.

Appellant argues essentially three points:
(1) the teachings of Walsh cannot properly be combined with those of either Keller or Berkovits because Walsh does not relate to a cardiac pacer;
(2) if the digital timing circuitry taught by Walsh is incorporated in either the Keller pacer or the Berkovits pacer, the resulting structure would not fairly meet the claims in issue; and
(3) the board did not "accord appropriate weight to" Dr. Cywinski's affidavit, but rather "completely set aside", "disregarded", and "ignored" his statements therein.

Definition of Cardiac Pacer

The claims are directed to cardiac pacer apparatus. A cardiac pacer is defined as:

> ... a device designed to stimulate, by electrical impulse, contractions of the heart muscle at a certain rate; used in absence of normal function of the sino-atrial node; it may be connected from the outside or implanted within the body. ([FN11])

> FN11. Dorland's Illustrated Medical Dictionary 1080-81 (24th ed. 1965), defining "pacemaker." This definition is carried forward in the subsequent edition, Dorland's Illustrated Medical Dictionary 1117-18 (25th ed. 1974), and augmented with examples of external types and implanted types of pacers.

On its face, Keller relates to a cardiac pacer which is implanted within the body. On its face, Berkovits relates to a cardiac pacer which is not implantable within the body, but rather is connected from the outside of the patient's body. Appellant admitted below that "(b)oth the Keller '596 patent and the Berkovits '990 patent disclose cardiac pacers ...," and asserted that these patents "represent conventional thinking with respect to cardiac pacing at the time the present invention was made." Appellant admitted further that "the Keller et al and Berkovits devices are true interactive cardiac pacers ...." Thus, the term "cardiac pacer" encompasses both implantable and non-implantable devices.

Therefore, the words "cardiac pacer apparatus" used in the rejected claims are broad enough to read on a device for humans which is not implanted. [FN12]

> FN12. Dr. Cywinski, who indicated that he was familiar with the pacers "disclosed and claimed" in Keller and in Berkovits, stated: "A cardiac pacer is implanted in the human body to ...." We note Dr. Cywinski did not state that a device cannot be a cardiac pacer if it is not implanted in the human body, and we further note that, based on his familiarity with the pacer disclosed and claimed in Berkovits (which is not implantable), he could not have intended his testimony to be so construed.

Walsh Relates to Analogous Art

[1] Contrary to the position advanced by appellant on appeal, Keller and Berkovits are the principal references relied on by the examiner in his rejections. [FN13] Walsh is the secondary reference. The board correctly noted that Walsh is relied on only for the teaching of digital timing in an analogous environment.

> FN13. Appellant, at page 6 of his main brief, states: "... the type described in the principal reference, the Walsh et al article."

Appellant "strongly emphasizes" that Walsh "is not about cardiac pacing"; and that the device taught by Walsh is an investigatory ***425** device used in the study of a mammalian heart rather than a therapeutic device used in the treatment of a living human (which, of course, has a mammalian heart).

Walsh discloses a heart stimulator used in studies of the atrioventricular conduction system of a mammalian heart. A stimulator used in studies of the atrioventricular conduction system of a mammalian heart is not so non-analogous to a stimulator used to pace a mammalian heart that it should be ignored. Accordingly, Walsh may be combined with either Keller or Berkovits. In re Menough, 51 CCPA 741, 323 F.2d 1011, 139 USPQ 278 (1963).

Appellant further argues that Walsh does not relate to a cardiac pacer because Walsh teaches a stimulator which is used in conjunction with an oscilloscope, and which has a multiplicity of multiple position switches that are operator controlled. As discussed above, Berkovits discloses a cardiac pacer which may be used in conjunction with an oscilloscope, and which has a multiplicity of multiple position switches as well as other variable circuit elements that are operator controlled. Thus, the argument that such features render Walsh unrelated to a cardiac pacer is without merit.

Combining Walsh with Keller or Berkovits

[2][3] To justify combining reference teachings in support of a rejection it is not necessary that a device shown in one reference can be physically inserted into the device shown in the other. In re Griver, 53 CCPA 815, 354 F.2d 377, 148 USPQ 197 (1966); In re Billingsley, 47 CCPA 1108, 279 F.2d 689, 126 USPQ 370 (1960). The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. In re Wood, 599 F.2d 1032, 202 USPQ 171 (CCPA 1979); In re Passal, 57 CCPA 1151, 426 F.2d 828, 165 USPQ 720 (1970); In re Richman, 57 CCPA 1060, 424 F.2d 1388, 165 USPQ 509 (1970); In re Rosselet, 52 CCPA 1533, 347 F.2d 847, 146 USPQ 183 (1965).

Both Keller and Berkovits disclose heart stimulators that use R-C type timing circuits. Walsh teaches the use of digital type timing circuits in place of R- C type timing circuits in conventional heart stimulators. Therefore, the question is whether it would have been obvious to one of ordinary skill in the art, working with the Keller and the Berkovits and the Walsh references before him, to do what the inventors herein have done, that is, to use a digital timing circuit in a cardiac pacer. In re Winslow, 53 CCPA 1574, 365 F.2d 1017, 151 USPQ 48 (1966), as modified by In re Antle, 58 CCPA 1382, 444 F.2d 1168, 170 USPQ 285 (1971)

. We agree that the references establish a prima facie case of obviousness.

The Cywinski Affidavit

Once a prima facie case of obviousness was established below, the burden shifted to appellant to rebut it, if he could, with objective evidence of non-obviousness. In re Fielder, 471 F.2d 640, 176 USPQ 300 (CCPA 1973). Appellant attempted to do so by introducing the Cywinski affidavit. Both this court and the PTO must give full consideration to that evidence and render a decision based on the relative strength of appellant's showing and the prima facie case established by the references. In re Saunders, 58 CCPA 1316, 444 F.2d 599, 170 USPQ 213 (1971).

Appellant's showing below "may well shift the burden of proof to the examiner to then come forward with further support for his conclusion that the invention would be obvious under the conditions stated in section 103." In re Katzschmann, 52 CCPA 1497, 1500, 347 F.2d 620, 622, 146 USPQ 66, 68 (1965). (Emphasis added.) Whether appellant's showing does shift the burden of proof, however, must be determined on a case by case basis.

As characterized by appellant, the Cywinski affidavit offered as objective evidence of non-obviousness "concerns itself mainly ***426** with the question of whether the Walsh et al article suggest (sic) the use of digital timing in a cardiac pacer ...." But one cannot show non-obviousness by attacking references individually where, as here, the rejections are based on combinations of references. In re Young, 56 CCPA 757, 403 F.2d 754, 159 USPQ 725 (1968). Moreover, as set forth above, the test is not whether a suggestion to use digital timing in a cardiac pacer is found in Walsh (which was the test applied by Dr. Cywinski), but rather what Keller in view of Walsh and what Berkovits in view of Walsh would have suggested to one of ordinary skill in the art.

Contrary to the position advanced by appellant, In re Carroll, 601 F.2d 1184, 202 USPQ 571 (CCPA 1979) is not "nearly 'on fours' with the present factual situation."

In Carroll this court concluded that the opinion of an expert on what the prior art taught was deserving of considerable deference under the circumstances of that case. The expert had critically reviewed the sole piece of prior art and totally discounted its value. The accuracy of the expert's views was supported by documentary evidence.

In the present case, we are not presented with a single prior art reference, but rather two combinations of three references: Keller in view of Walsh, and Berkovits in view of Walsh. The affidavit does not indicate that Dr. Cywinski critically reviewed the use of digital timing in a cardiac pacer as prima facie established by the two combinations of references. Consequently, Dr. Cywinski's opinion on the ultimate legal question of obviousness is entitled to little weight.

Section 103 Rejections are Affirmed

The board considered Dr. Cywinski's testimony and accorded it due weight. We are satisfied that the record herein contains sufficient evidence to support the board's decision. Accordingly, we affirm the decision of the board regarding the s 103 rejections.

Requirements of Reissue Declaration

Turning to the rejections under 35 U.S.C. s 251, we note that a reissue declaration, defective in the nature alleged herein, is correctable in the PTO by the filing of a supplemental oath or declaration.

A reissue oath or declaration filed under 37 CFR 1.175 subsection (a)(4) must also comply with both subsections (a)(5) and (a)(6).[FN14] Subsection (a) of section 1.175 sets forth requirements relating to the content of a statement which must be filed by the applicant with his reissue application. Subsection (a)(4), which requires the applicant to particularly specify the prior art or other information relevant to patentability and not previously considered by the PTO, which might cause the examiner to deem the original patent wholly or partly inoperative or invalid, therefore requires the prior art or other information to be specified in that statement.

FN14. See note 4, supra.

In the present case, the reissue declaration purported to incorporate by reference a paper entitled "citation to prior art" on which the prior art being brought to the attention of the PTO by the applicant was delineated. The question before this court, therefore, is whether the citation of prior art was successfully incorporated by reference into the declaration.

Subsection (a) of section 1.175 requires the statement to be made by the applicant under oath or declaration. This statement, therefore, (1) must be subscribed to by the applicant, and (2) must either (a) be sworn to or affirmed by the applicant as provided in 37 CFR 1.66, or (b) include the personal declaration of the applicant as prescribed in 37 CFR 1.68. See 37 CFR 1.65(a) (2).

[4] In the present case, the declaration per se was subscribed by the applicant and included an appropriate personal declaration of the applicant. The citation of prior art was not subscribed by the applicant and did not include the personal declaration of the applicant. Rather, the citation of prior art was subscribed by applicant's attorney. And, while the citation of prior art is dated ***427** one day earlier than the declaration, there is no evidence in the record that applicant even saw the citation of prior art at the time the declaration was executed.

Accordingly, we affirm the decision of the board regarding the rejections of claims 1, 2, 6, 7, and 9-16 under 35 U.S.C. s 251 because the declaration does not comply with 37 CFR 1.175(a)(4).

As to the rejections on grounds relating to 37 CFR 1.175(a)(5) and (a)(6), we do not agree with the board.

Subsection (a)(5) requires the applicant to specify "the errors or what might be deemed to be errors relied upon, and how they arose or occurred." Subsection 1414.03 of the Manual of Patent Examining Procedure (MPEP) (4th ed., Rev. 1, Jan. 1980) [FN15] states that to comply with the requirements of subsection (a)(5) in a s 1.175(a)(4) type reissue, the reissue declaration

> might state that some or all claims might be deemed to be too broad and invalid in view of references X and Y which were not of record in the patent files. Usually, a general statement will suffice. * * * (The reissue declaration) must indicate when and the manner in which the reissue applicant became aware of the prior art or other information....

MPEP s 1401.08 (3rd ed., Rev. 54, Oct. 1977) merely stated:

> The reissue oath or declaration must point out very specifically what the defects are and how the errors arose.

[5] Applicant's reissue declaration contains a passage (which we have numbered "1" in the quoted declaration) that is remarkably close to what subsequently appeared in the fourth edition of the MPEP with respect to the content of a declaration for this purpose. We hold on the facts of this case that the declaration fairly meets the requirements of 37 CFR 1.175(a)(5).

Subsection (a)(6) requires the applicant to state that said errors, if any, arose without deceptive intention on the part of the applicant. The passage in the declaration which we have numbered "3" fairly meets this requirement.

CONCLUSION

Accordingly, the decision of the board regarding the rejections of claims 1, 2, 6, 7, 9-11, 13, and 14 based on the prior art is affirmed, the decision of the board regarding the rejections of claims 1, 2, 6, 7, and 9-16 based on 37 CFR 1.175 subsection (a)(4) is affirmed, and that based on subsections (a)(5) and (a)(6) is reversed.

MODIFIED.

642 F.2d 413, 208 U.S.P.Q. 871

END OF DOCUMENT

> FN15. We note that MPEP chapter 1400, the chapter dealing with reissue applications, has been completely revised in the fourth edition and now includes detailed instructions regarding, inter alia, reissue declarations.

Westlaw.

157 F.3d 1340
1998-2 Trade Cases P 72,289, 48 U.S.P.Q.2d 1225
(Cite as: 157 F.3d 1340)

United States Court of Appeals,
Federal Circuit.

C.R. BARD, INC., Plaintiff-Appellant,
v.
M3 SYSTEMS, INC., Defendant-Appellee.

No. 96-1165.

Sept. 30, 1998.

Holder of reissue patent and original patent for "gun" devices used to take samples of body tissue for biopsy purposes brought infringement action against competitor. Competitor raised defenses that patents were invalid and not infringed, and also charged patent holder with fraud, antitrust law violation, and patent misuse. The United States District Court for the Northern District of Illinois, Elaine E. Bucklo, J., entered judgment upon jury verdict for competitor, and patent holder appealed. The Court of Appeals, Pauline Newman, Circuit Judge, held that: (1) reissue patent was not anticipated or obvious; (2) reissue patent was not invalid for incorrect inventorship; (3) reissue patent was not invalid for alleged violation of reissue requirements; (4) original patent was supported by written description; (5) original patent was not invalid as anticipated or obvious; (6) original patent was not infringed; (7) patent holder did not engage in fraud; (8) antitrust liability could not be based on fraud in procurement of patent or allegation of "sham" litigation; (9) finding of patent misuse was not supported by evidence; and, in opinions by Mayer, Chief Judge, and Bryson, Circuit Judge, held that: (10) reissue patent was invalid under statutory on-sale bar; and in opinion by Bryson, Circuit Judge, held that: (11) patent holder's modification of its device to exclude others' replacement needles constituted antitrust violation.

Affirmed in part, reversed in part, vacated in part, and remanded.

Pauline Newman, Circuit Judge, noted her partial dissent.

Mayer, Chief Judge, concurred in part, dissented in part, and filed opinion.

Bryson, Circuit Judge, concurred in part, dissented in part, and filed opinion which Mayer, Chief Judge, joined in part.

West Headnotes

[1] Patents ⇐324.55(3.1)
291k324.55(3.1) Most Cited Cases

On review from finding of patent invalidity, the appellate court must decide for itself whether reasonable jurors viewing the evidence as a whole could have found the facts needed to support the verdict in light of the applicable law; appellant must establish that the jury's actual or inferred factual findings were not supported by substantial evidence, or that the found or inferred facts were not sufficient to support the conclusion, or that the law was incorrectly applied.

[2] Federal Civil Procedure ⇐2608.1
170Ak2608.1 Most Cited Cases

When a claim or defense cannot be maintained or defeated without a favorable finding on a material issue, and there is not substantial evidence supporting that finding, the verdict cannot stand and the court must render judgment as a matter of law. Fed.Rules Civ.Proc.Rule 50, 28 U.S.C.A.

[3] Patents ⇐37
291k37 Most Cited Cases

To meet the requirements of patentability a device must be new; that is, it must not have been previously known. 35 U.S.C.A. § 102.

[4] Patents ⇐69
291k69 Most Cited Cases

When the defense of lack of novelty is based on a

printed publication that is asserted to describe the same invention, a finding of anticipation requires that the publication describe all of the elements of the claims, arranged as in the patented device. 35 U.S.C.A. § 102.

[5] Patents ⚿101(2)
291k101(2) Most Cited Cases

Term "freely slidable," as used in patent for biopsy gun which claimed "a second needle extending through said hollow first needle and freely slidable therewithin," meant freely slidable in both directions, not just forward direction, so patented gun did not read on prior art needle which could not slide in both directions.

[6] Patents ⚿165(4)
291k165(4) Most Cited Cases

Preamble to patent claim may limit the scope of the claim, when patentability depends on limitations stated in the preamble or when the preamble contributes to the definition of the claimed invention, but, where preamble simply states the intended use or purpose of the invention, preamble usually does not limit the scope of the claim unless the preamble provides antecedents for ensuing claim terms and limits the claim accordingly.

[7] Patents ⚿165(1)
291k165(1) Most Cited Cases

Reference to "housing" of tissue sampling device, in preamble of patent claim, did not establish that claim was anticipated by failing to distinguish gun device from prior art, as question of anticipation related only to device's needles, not device itself.

[8] Patents ⚿51(2)
291k51(2) Most Cited Cases

Although the on-sale bar precluding patentability can arise from one's own invention, "anticipation" does not arise from sale of one's own invention. 35 U.S.C.A. § 102(a, b).

[9] Patents ⚿66(1.25)
291k66(1.25) Most Cited Cases

Patent for needles used in biopsy gun was not anticipated by prior art, in view of differences between patented needles and prior art. 35 U.S.C.A. § 102.

[10] Patents ⚿16(1)
291k16(1) Most Cited Cases

[10] Patents ⚿314(5)
291k314(5) Most Cited Cases

Patent invalidity based on obviousness is a question of law based on underlying facts; relevant facts relate to (1) the scope and content of the prior art, (2) the level of ordinary skill in the field of the invention, (3) the differences between the claimed invention and the prior art, and (4) any objective evidence of nonobviousness such as long felt need, commercial success, the failure of others, or copying. 35 U.S.C.A. § 103.

[11] Patents ⚿314(5)
291k314(5) Most Cited Cases

The ultimate determination of obviousness or nonobviousness of patent is a legal conclusion. 35 U.S.C.A. § 103.

[12] Patents ⚿16.17
291k16.17 Most Cited Cases

When a patent describes a new mechanical device that can be viewed as a new combination or arrangement of mechanical components, the legal conclusion of obviousness requires that there be some suggestion, motivation, or teaching in the prior art whereby the person of ordinary skill would have selected the components that the inventor selected and used them to make the new device. 35 U.S.C.A. § 103.

[13] Patents ⚿324.55(4)
291k324.55(4) Most Cited Cases

Court of Appeals reviews a jury verdict of obviousness to determine whether substantial evidence supports the factual findings predicate to the legal conclusion of obviousness and whether such findings can support the verdict, with appropriate consideration of the presumption of validity and the requirement that obviousness be proved by clear and convincing evidence; factual inferences are drawn and credibility determinations are accepted in favor of the verdict winner. 35

U.S.C.A. § 103.

[14] Patents ⚿16.17
291k16.17 Most Cited Cases

Patented needle assembly in biopsy gun was not obvious absent any prior art providing a teaching or suggestion or motivation that a needle assembly should be made with the structure shown and claimed in the patent.

[15] Patents ⚿324.55(4)
291k324.55(4) Most Cited Cases

Patent inventorship is a question of law, applied to relevant facts; findings of relevant fact are reviewed on the standard appropriate to the trier of fact, while the application of law to the found or admitted facts is reviewed on appeal without deference to the trier of fact.

[16] Patents ⚿90(1)
291k90(1) Most Cited Cases

The "inventor" is the person or persons who conceived the patented invention; thus, facts relevant to inventorship are those showing the conception of the invention, for others may provide services in perfecting the invention conceived by another without becoming an "inventor" by operation of law.

[17] Patents ⚿91(1)
291k91(1) Most Cited Cases

An assertion of incorrect inventorship in patent must be based on facts proved by clear and convincing, corroborated evidence.

[18] Patents ⚿91(4)
291k91(4) Most Cited Cases

Competitor failed to establish, by clear and convincing evidence, that omitted individual was inventor of claimed needle assembly for biopsy gun, and patent was thus not invalid for incorrect inventorship. 35 U.S.C.A. § 256.

[19] Patents ⚿90(1)
291k90(1) Most Cited Cases

To invalidate a patent based on incorrect inventorship it must be shown not only that the inventorship was incorrect, but that correction is unavailable. 35 U.S.C.A. § 256.

[20] Patents ⚿136
291k136 Most Cited Cases

A petition to correct inventorship of patent may be filed during reissue proceedings. 37 C.F.R. § 1.324.

[21] Patents ⚿138(1)
291k138(1) Most Cited Cases

[21] Patents ⚿141(4)
291k141(4) Most Cited Cases

Error in failing to claim needles in earlier patent for biopsy gun was amenable to correction by reissue, and correction of error was timely because it occurred within requisite two-year time period. 35 U.S.C.A. § 251; 37 C.F.R. § 1.175.

[22] Patents ⚿136
291k136 Most Cited Cases

An inventor's failure to appreciate the scope of an invention at the time of the original patent grant, and thus an initial intent not to claim the omitted subject matter, is a remediable error.

[23] Patents ⚿167(1)
291k167(1) Most Cited Cases

Claims of patent for biopsy gun which required sequential energizing means for moving first and second needles were supported by the description contained in the specification, as claims, properly construed, permitted some overlap in energizing step in accordance with specification.

[24] Patents ⚿53
291k53 Most Cited Cases

[24] Patents ⚿61
291k61 Most Cited Cases

Patent for biopsy gun was not invalid based on anticipation, as neither published Patent Cooperation Treaty (PCT) application nor earlier version of gun showed integrated mechanical energizing structure described in patent claims, as properly construed. 35 U.S.C.A. § 102.

[25] Patents ⚿16.17
291k16.17 Most Cited Cases

Patent for biopsy gun was not invalid as obvious, notwithstanding earlier versions of guns, absent any reference suggesting structure or various features employed in patented gun, or teaching of combination of descriptions of earlier versions. 35 U.S.C.A. § 103.

[26] Patents ⚿323.3
291k323.3 Most Cited Cases

Patentee would be entitled to a new trial on infringement, due to improper claim construction at trial, if a jury reasonably could have reached verdicts of infringement upon correct claim construction and correct application of the law of infringement; however, if only one result is supportable in law and on undisputed facts, judgment as a matter of law is appropriate.

[27] Patents ⚿235(2)
291k235(2) Most Cited Cases

Patent for biopsy gun with structure using rotational tensioning as the energizing means, pursuant to means-plus-function claim, was not infringed by accused device which performed function of sequential energizing, as required by patent, but did not have equivalent structure since it did not contain "guide sleeve" and used linear tensioning rather than counter-rotational tensioning. 35 U.S.C.A. § 112.

[28] Patents ⚿314(5)
291k314(5) Most Cited Cases

The determination of patent infringement under means-plus-function statute is a factual question. 35 U.S.C.A. § 112.

[29] Patents ⚿237
291k237 Most Cited Cases

To be found infringing under means-plus-function statute, the accused equivalent structure need not have been known at the time the patented invention was made. 35 U.S.C.A. § 112.

[30] Patents ⚿157(1)
291k157(1) Most Cited Cases

Claims must be interpreted the same way for determining infringement as was done to sustain their validity.

[31] Patents ⚿97
291k97 Most Cited Cases

Fraud in the procurement of a patent requires proof of the elements of fraud as developed in the common law: (1) that a false representation of a material fact was made, (2) with the intent to deceive, (3) which induced the deceived party to act in justifiable reliance on the misrepresentation, and (4) which caused injury that would not otherwise have occurred.

[32] Fraud ⚿4.5
184k4.5 Most Cited Cases

[32] Fraud ⚿20
184k20 Most Cited Cases

The tort of fraud requires that there was a successful deception, and action taken by the person deceived that would not have otherwise been taken.

[33] Patents ⚿97
291k97 Most Cited Cases

Applied to patent prosecution, tort of fraud requires (1) a false representation or deliberate omission of a fact material to patentability, (2) made with the intent to deceive the patent examiner, (3) on which the examiner justifiably relied in granting the patent, and (4) but for which misrepresentation or deliberate omission the patent would not have been granted.

[34] Monopolies ⚿12(15)
265k12(15) Most Cited Cases

[34] Patents ⚿97
291k97 Most Cited Cases

A finding of fraud can of itself render the patent unenforceable, and when accompanied by the elements of violation of the Sherman Act, can incur additional consequences. Sherman Act, § 1 et seq., as amended, 15 U.S.C.A. § 1 et seq.

[35] Monopolies ⚿12(15)
265k12(15) Most Cited Cases

To establish fraud for purposes of antitrust violation, the patent infringement defendant must make a greater showing of scienter and materiality than when seeking unenforceability based on conduct before the Patent Office.

[36] Patents ⚿97
291k97 Most Cited Cases

Alleged misrepresentations and omissions made by patent applicant in procurement of patents for biopsy guns did not amount to fraud, as there was no showing of deceptive intent, some allegedly omitted evidence was cumulative, and there was no evidence that applicant withheld or misrepresented prior art.

[37] Fraud ⚿36
184k36 Most Cited Cases

Good faith is an absolute defense to the charge of common law fraud.

[38] Patents ⚿97
291k97 Most Cited Cases

There is no presumption that information not filed by a patent applicant was material, for purpose of fraud claim, simply because patentability ensued; rather, to establish culpability, any omission must be of a fact material to patentability and it must be a deliberate misrepresentation, whether by omission or misstatement, that was intended to and did mislead the examiner into taking favorable action that would not otherwise have been taken.

[39] Patents ⚿97
291k97 Most Cited Cases

Intent to mislead or to deceive Patent Office must be proved by clear and convincing evidence, and deceptive intent is not inferred simply because information was in existence that was not presented to the examiner.

[40] Monopolies ⚿12(15)
265k12(15) Most Cited Cases

On claim alleging antitrust violation based on use of fraudulently obtained patent to restrain competition, restraint on competition based on power in the relevant market must be established on the criteria of the Sherman Act's antimonopoly provision. Sherman Act, § 2, as amended, 15 U.S.C.A. § 2.

[41] Monopolies ⚿12(15)
265k12(15) Most Cited Cases

It is not presumed that the patent-based right to exclude necessarily establishes market power in antitrust terms; unless the patent had been obtained by fraud such that the market position had been gained illegally, the patent right to exclude does not constitute monopoly power prohibited by the Sherman Act. Sherman Act, § 2, as amended, 15 U.S.C.A. § 2.

[42] Monopolies ⚿12(15)
265k12(15) Most Cited Cases

Finding of antitrust liability could not be based on use of fraudulently obtained patent to restrain competition, where jury's findings of fraud were not supported by substantial evidence. Sherman Act, § 2, as amended, 15 U.S.C.A. § 2.

[43] Monopolies ⚿12(15)
265k12(15) Most Cited Cases

Conduct prohibited under antitrust law includes bringing suit to enforce a patent with knowledge that the patent is invalid or not infringed, and the litigation is conducted for anti-competitive purposes.

[44] Monopolies ⚿12(16.5)
265k12(16.5) Most Cited Cases

Although sham litigation as a tactic to destroy competition can lead to antitrust violation, sham litigation requires more than a failed legal theory.

[45] Monopolies ⚿12(15)
265k12(15) Most Cited Cases

[45] Monopolies ⚿12(16.5)
265k12(16.5) Most Cited Cases

Neither the bringing of an unsuccessful suit to enforce patent rights, nor the effort to enforce a patent that falls to invalidity, subjects the suitor to antitrust liability.

[46] Monopolies ⚿12(15)
265k12(15) Most Cited Cases

The law recognizes a presumption that the assertion of a duly granted patent is made in good faith, for purpose of antitrust claim against patentee, and this presumption is overcome only by affirmative evidence of bad faith.

[47] Monopolies ⚿12(15)
265k12(15) Most Cited Cases

[47] Monopolies ⚿12(16.5)
265k12(16.5) Most Cited Cases

Patentee's infringement action did not amount to "sham" litigation that would support antitrust liability, as only evidence that action was sham was testimony of engineer that he did not think that alleged infringer's original product infringed patent and that other employees had told him that alleged infringer changed its design to one that did not infringe, where engineer also testified that he did not know whether those who told him accused device did not infringe had ever read patent, or whether they were familiar with concept of infringement under the doctrine of equivalents.

[48] Patents ⚿283(1)
291k283(1) Most Cited Cases

The defense of patent misuse arises from the equitable doctrine of unclean hands, and relates generally to the use of patent rights to obtain or to coerce an unfair commercial advantage; patent misuse relates primarily to a patentee's actions that affect competition in unpatented goods or that otherwise extend the economic effect beyond the scope of the patent grant.

[49] Patents ⚿283(1)
291k283(1) Most Cited Cases

Patent misuse is viewed as a broader wrong than antitrust violation because of the economic power that may be derived from the patentee's right to exclude; thus, misuse may arise when the conditions of antitrust violation are not met.

[50] Patents ⚿283(1)
291k283(1) Most Cited Cases

The key inquiry on claim of patent misuse is whether, by imposing conditions that derive their force from the patent, the patentee has impermissibly broadened the scope of the patent grant with anticompetitive effect.

[51] Patents ⚿283(1)
291k283(1) Most Cited Cases

Patent misuse arises in equity, and a holding of misuse renders the patent unenforceable until the misuse is purged; it does not, of itself, invalidate the patent.

[52] Patents ⚿324.55(1)
291k324.55(1) Most Cited Cases

When a jury has determined that patent misuse occurred, Court of Appeals reviews the underlying findings of fact for support by substantial evidence, presuming that the jury resolved any factual disputes in favor of the verdict winner, and Court then determines whether, on the found or presumed facts, the conclusion on the issue of misuse is correct.

[53] Patents ⚿283(1)
291k283(1) Most Cited Cases

Although the defense of patent misuse indeed evolved to protect against "wrongful" use of patents, the catalog of practices labelled "patent misuse" does not include a general notion of "wrongful" use.

[54] Patents ⚿324.55(1)
291k324.55(1) Most Cited Cases

Jury's finding that holder of patent for biopsy gun engaged in patent misuse was not supported by evidence, absent evidence that patent holder's competitive activities were either per se patent misuse or that they were not reasonably within the patent grant.

[55] Patents ⚿81
291k81 Most Cited Cases

Reissue patent for biopsy gun was invalid under statutory on-sale bar based on patentee's activities occurring more than one year prior to filing date of patent's parent application. (Per Mayer, Chief Judge, with one Circuit Judge concurring in the result.) 35 U.S.C.A. § 102(b).

157 F.3d 1340
1998-2 Trade Cases P 72,289, 48 U.S.P.Q.2d 1225
(Cite as: 157 F.3d 1340)

[56] Monopolies ⇐12(15)
265k12(15) Most Cited Cases

Patent holder's modification of its patented biopsy gun to prevent competitors' non-infringing, flangeless needles from being used in patent holder's guns constituted antitrust violation, based on evidence that patent holder enjoyed monopoly power in market for replacement needles and maintained its monopoly position by exclusionary conduct. (Per Bryson, Circuit Judge, for a majority of the court.)

Patents ⇐328(2)
291k328(2) Most Cited Cases

Cited.

Patents ⇐328(2)
291k328(2) Most Cited Cases

Valid but not infringed.

Patents ⇐328(4)
291k328(4) Most Cited Cases

Invalid.

Patents ⇐328(2)
291k328(2) Most Cited Cases

4,944,308. not infringed.

***1345** John F. Sweeney, Morgan & Finnegan, L.L.P., New York City, argued for plaintiff-appellant. With him on the brief were Harry C. Marcus, Desiree M. Stahl, and Walter G. Hanchuk. Of counsel were Warren H. Rotert and Steven F. Meyer.

***1346** Richard D. Harris, Law Offices of Dick and Harris, and Paul E. Slater, Sperling, Slater & Spitz, P.C., Chicago, Illinois, argued for defendant-appellee. With them on the brief were Max Shaftal, Jordan A. Sigale, and Jovan N. Jovanovic, Law Offices of Dick and Harris, and Greg Shinall, Sperling, Slater & Spitz, P.C.

Before MAYER, Chief Judge, NEWMAN and BRYSON, Circuit Judges.

Opinion for the court by Judge NEWMAN except for Part I.E (on-sale issue) and Part VI.C (attempt to monopolize). Judge BRYSON does not join Parts I.A-D of Judge NEWMAN'S opinion. The district court's judgment concerning the on-sale bar is affirmed in separate opinions by Chief Judge MAYER and Judge BRYSON. The district court's judgment concerning the attempt to monopolize issue is reversed-in-part by Judge NEWMAN'S opinion (Parts VI.A- B), which Chief Judge MAYER and Judge BRYSON join, and affirmed-in-part by Judge BRYSON'S opinion (Part II), which Chief Judge MAYER joins. Judge NEWMAN dissents with respect to the on-sale bar and attempt to monopolize issues.

PAULINE NEWMAN, Circuit Judge.

In suit are United States Patent No. 4,944,308 issued July 31, 1990 (the '308 patent) and United States Reissue Patent No. RE 34,056 issued September 8, 1992 (the '056 patent), both entitled "Tissue Sampling Device." These patents originated with the work of Dr. Per Gunner Lindgren, a physician in Sweden, and are now owned by appellant C.R. Bard, Inc.

The patented inventions are devices for taking samples of body tissue for biopsy purposes, wherein a biopsy needle firing device or "gun" mechanically injects a biopsy needle assembly into the core body tissue. These devices are described as improving the speed, accuracy, ease, and patient comfort of tissue sampling, compared with manually inserted biopsy needles. They are said to be particularly advantageous for sampling small or movable lesions and fibrous or firm tissues, because the rapidly and firmly fired needles can penetrate even fibrotic lesions before the lesions can slip aside. The patented guns and needles have achieved commercial success.

Bard sued M3 Systems in August 1993 in the United States District Court for the Northern District of Illinois, [FN1] asserting that M3's ProMag biopsy gun and ACN/SACN biopsy needle assemblies infringed the '308 and '056 patents, respectively. M3 raised the defenses that the patents are invalid on several grounds and are not infringed, and also charged Bard with fraud, antitrust law violation, and patent misuse. The jury

rendered special verdicts in favor of M3 on every issue, finding the '056 patent invalid and not infringed on each of the grounds of anticipation, obviousness, violation of a section 102(b) bar, incorrect naming of inventors, and non-compliance with reissue requirements; and finding the '308 patent invalid and not infringed on grounds of anticipation, obviousness, and insufficient written description. The jury also found that Bard perpetrated fraud in the Patent and Trademark Office (PTO) in obtaining both patents, that Bard misused both patents, and that Bard violated antitrust law, awarding $1.5 million in antitrust damages, trebled by the district court.

FN1. *C.R. Bard, Inc. v. M3 Sys., Inc.*, No. 93-CV-4788 (N.D. Ill. Oct. 2 & Dec. 20, 1995) (orders).

The district court denied all post-trial motions. This appeal followed. This court affirms the judgment of invalidity of the '056 patent and vacates the judgment of noninfringement of the '056 patent. The judgment of invalidity of the '308 patent is reversed and the judgment of noninfringement is affirmed. The judgments of misuse and fraud are reversed. The judgment of antitrust violation on the ground of attempt to monopolize is affirmed, but the antitrust damages award is vacated, for redetermination upon remand.

THE PATENTED INVENTIONS

The First Generation Device--The PCT Patent Application

In 1981 Dr. Lindgren, working in Sweden with Jan Allard, an engineer, designed and *1347 constructed the first of several successively improved mechanical biopsy guns. This "first generation" gun was designed to fire a commercially available biopsy needle assembly made by the Baxter Travenol Company, having the brand name "Tru-Cut." The Tru-Cut is a double needle consisting of a hollow outer needle called the cannula and an inner needle called the stylet. The stylet is solid except for a recess near its point. In the manual procedure for which the Tru-Cut was designed, the physician would first extend the stylet and insert the assembly into the body tissue, whereupon the tissue to be sampled would flow into the recess in the stylet; the physician would then push the cannula into the body tissue to surround the stylet and cut and trap the tissue sample in the recess.

This procedure required the physician to use both hands to manipulate the needles, while a second physician would hold and manipulate the ultrasound equipment that is usually required to view the interior of the body and direct insertion of the needles. Dr. Lindgren sought to mechanize this procedure in order to improve the speed and accuracy of insertion, to reduce human error, and to permit a physician to perform the biopsy without assistance by providing a sampling device that can be operated with one hand while the other hand holds the ultrasound apparatus.

The first generation gun is a box-like structure fitted with two spring-loaded drivers associated with slots that are configured to hold the cannula and stylet of the Tru-Cut needle assembly. To use this gun the physician must first "cock" each of the spring-loaded drivers. This cocking action, as it was often called at trial, is referred to as pre-tensioning or energizing in the patent documents. Cocking is performed by hand or with a specially designed tool described as a miniature crowbar. After the drivers are cocked, the stylet and cannula are placed in the appropriate slots and the gun housing is closed. The gun is then aimed at the target tissue and a trigger mechanism releases the stylet and cannula in rapid sequence. The needles are then manually retrieved.

Dr. Lindgren and Mr. Allard filed a patent application on the first generation gun under the Patent Cooperation Treaty (PCT). The invention was assigned to Radiplast AB, a small Swedish company associated with Dr. Lindgren. The PCT application was filed on March 31, 1982 and was published on October 13, 1983. It is prior art to the United States patents in suit.

The Second Generation--The '056 Reissue Patent

Starting in 1984, Dr. Lindgren undertook to improve the gun so that it would not be necessary for the physician to cock the two drivers manually before installing the biopsy needles, a step described as awkward and inefficient. In 1985 Dr. Lindgren, working with Dan Åkerfeldt, an engineer,

designed a mechanism whereby the drivers are cocked by external action after the needles are placed in the gun and the housing is closed. In this mechanism rods are attached to each of the spring-loaded drivers, extend out the back of the gun, and culminate in a ring or handle. By pulling the ring or handle the operator simultaneously cocks both drivers, moving the needles rearward. A trigger mechanism then fires the stylet and cannula, in rapid sequence, into the tissue to be sampled.

The Tru-Cut needles were not usable with the second generation gun, for their structure was such that they could not be moved rearward as well as propelled forward. New needles were designed with a modified hub and flange structure and a slit in the stylet flange to facilitate placement in the gun. Corresponding structural changes were made to the gun to accommodate the changes in the needles. Radiplast, as assignee, filed a patent application in Sweden on February 19, 1986. The United States application was filed on July 30, 1986, naming Dr. Lindgren as the inventor. Corresponding United States Patent No. 4,699,154 (the '154 patent) was issued on October 13, 1987, with claims to the combination of the second generation gun and the new needle assembly. The '154 patent did not claim the needle assembly alone.

***1348** In 1989 Bard, having become Radiplast's distributor in 1987, acquired ownership of the Radiplast patents. Bard applied for reissue of the '154 patent in order to add claims to the needle assembly alone. This reissue patent issued on September 8, 1992, and is the '056 patent in suit. During the reissue proceeding Bard and Dr. Lindgren petitioned the PTO to correct the inventorship to include Dan Åkerfeldt. In addition, Bard described to the PTO various activities of Radiplast in the United States, as shall be discussed in connection with the on-sale issue.

The Third Generation Gun--The '308 Patent

Dan Åkerfeldt continued to work on improving these devices. He sought to make the gun easier to use, especially by inexperienced physicians. Because pulling the cocking ring required significant manual force to overcome the simultaneous resistance of both driver springs, he designed an external integrated cocking mechanism that energized the two springs sequentially, thereby requiring less force than did the simultaneous cocking mechanism of the second generation gun. The third generation gun also provided for separate rearward movement of the needles after the biopsy sample was taken, thereby facilitating removal of the tissue from the stylet. Radiplast applied for a United States patent on the third generation gun on November 14, 1988, naming Dan Åkerfeldt as inventor. The patent issued in 1990 and is the '308 patent in suit.

I
VALIDITY OF THE '056 REISSUE PATENT

[1] Bard charged M3 Systems with infringement of claims 9-12 and 21-23 of the '056 patent. M3 had the burden of establishing invalidity by clear and convincing evidence at trial. *Carella v. Starlight Archery,* 804 F.2d 135, 138, 231 USPQ 644, 646 (Fed.Cir.1986). On review, the appellate court must "decide for ourselves whether reasonable jurors viewing the evidence as a whole could have found the facts needed to support the verdict in light of the applicable law." *Lemelson v. General Mills, Inc.,* 968 F.2d 1202, 1207, 23 USPQ2d 1284, 1288 (Fed.Cir.1992). The appellant must establish that the jury's actual or inferred factual findings were not supported by substantial evidence, or that the found or inferred facts were not sufficient to support the conclusion, or that the law was incorrectly applied. *See, e.g., Applied Med. Resources Corp. v. United States Surgical Corp.,* 147 F.3d 1374, 1376, 47 USPQ2d 1289, 1290 (Fed.Cir.1998); *D.M.I., Inc. v. Deere & Co.,* 802 F.2d 421, 425, 231 USPQ 276, 278 (Fed.Cir.1986).

[2] When a claim or defense can not be maintained or defeated without a favorable finding on a material issue, and there is not substantial evidence supporting that finding, the verdict can not stand and the court must render judgment as a matter of law. *See* Fed.R.Civ.P. 50; *Anderson v. Liberty Lobby, Inc.,* 477 U.S. 242, 251-52, 106 S.Ct. 2505, 91 L.Ed.2d 202 (1986); *see generally Markman v. Westview Instruments, Inc.,* 52 F.3d 967, 975, 34 USPQ2d 1321, 1326 (Fed.Cir.1995) (in banc), *aff'd,* 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577, 38 USPQ2d 1461 (1996). The appellate court must determine whether on the evidence of record a jury might properly have returned a verdict in the non-movant's favor when the correct legal standard is applied. If not, the movant was entitled to have

the question removed from the jury and decided as a matter of law.

We apply these principles to each of the grounds on which the jury rendered verdicts of invalidity of the asserted '056 claims. We direct our discussion of validity primarily to claim 21, for the claim is representative and M3 Systems' expert witnesses admitted infringement of claim 21 by M3's original ACN needles:

> **21.** A biopsy needle for use with a tissue sampling device having a housing with a forward end, a first slide mounted for longitudinal motion within said housing, and a second slide mounted for longitudinal ***1349** motion within said housing, said biopsy needle comprising:
> a hollow first needle having proximal and distal ends;
> a second needle extending through said hollow first needle and freely slidable therewithin, said second needle having proximal and distal ends;
> a first head mounted to said proximal end of said hollow first needle, said first head including first flange means associated therewith for coupling said hollow first needle to said first slide for longitudinal motion both toward and away from said forward end of said housing; and
> a second head mounted to said proximal end of said second needle, said second head including second flange means associated therewith for coupling said second needle to said second slide for longitudinal motion both toward and away from said forward end of said housing.

A. Anticipation

[3] To meet the requirements of patentability a device must be new; that is, it must not have been previously known. Section 102(a) requires that the subject matter was not published anywhere, or known or used by others in the United States, before its invention by the patentee. [FN2] An invention that does not meet the requirements of novelty in section 102(a) is said to be "anticipated."

> FN2. § **102**. A person shall be entitled to a patent unless--
> **(a)** the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, ...

[4] When the defense of lack of novelty is based on a printed publication that is asserted to describe the same invention, a finding of anticipation requires that the publication describe all of the elements of the claims, arranged as in the patented device. *Shearing v. Iolab Corp.*, 975 F.2d 1541, 1544-45, 24 USPQ2d 1133, 1136 (Fed.Cir.1992); *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed.Cir.1989); *Perkin-Elmer Corp. v. Computervision Corp.*, 732 F.2d 888, 894, 221 USPQ 669, 673 (Fed.Cir.1984). The jury found that all of the claims at issue were "fully anticipated by a single prior art reference." Bard states that no reference described the new biopsy needle assembly of the '056 patent, and that the closest prior art, which all agree is the Travenol Tru-Cut needle assembly, differs in material ways. M3 Systems states that the Tru-Cut (or a publication describing the Tru-Cut) anticipated the claimed needle assembly because the '056 claims, correctly construed, read on the Tru-Cut.

The district court declined to construe all of the claim terms that were placed in dispute, instructing the jury that "words in a claim are to be given their ordinary and accustomed meaning, unless it appears that the inventor intended to use them differently.... You may use the specification to interpret what the patentee meant by a word or phrase in a claim." The record shows that the court defined some terms and the parties explained their views to the jury. This procedure was not incorrect at the time this case was tried----for as the court observed, the question of the relative roles of judge and jury was then before the Supreme Court----and does not of itself warrant a new trial. On appellate review, however, we apply the principles of *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1454-56, 46 USPQ2d 1169, 1172-75 (Fed.Cir.1998) (in banc), and determine whether on the correct claim construction the jury verdict can stand. *See United States Surgical Corp. v. Ethicon, Inc.*, 103 F.3d 1554, 1568, 41 USPQ2d 1225, 1236 (Fed.Cir.) (reviewing whether the verdict reached was in accordance with correct claim construction), *cert. denied*, 522 U.S. 950, 118 S.Ct. 369, 139 L.Ed.2d 287 (1997).

1. The Term "Freely Slidable"

[5] M3 Systems contends that the claim term "freely slidable" does not distinguish ***1350** the '056 claims from the Tru-Cut needle assembly. The term "freely slidable" appears in the following claim clause:

> a second needle extending through said hollow first needle and freely slidable therewithin, ...

Bard argues that the court should have construed "freely slidable" for the jury, and that correctly construed this term means that the needle slides freely in either direction. M3 responds that Bard improperly seeks to insert the limitation "totally" into the definition of "freely slidable" and that, correctly construed, "freely slidable" requires only sliding freely in the forward direction. M3 states that since the Tru-Cut is freely slidable in the forward direction, the claim reads on the prior art and is invalid for anticipation.

M3 Systems' proposed claim construction is not correct, and could not have reasonably been adopted. The specification leaves no uncertainty that the '056 needles are freely slidable in both directions, for that is a purpose of the new '056 needle structure. M3's proposed interpretation is unsupported by, and indeed is contrary to, the specification. *See Slimfold Mfg. Co. v. Kinkead Indus., Inc.*, 810 F.2d 1113, 1116, 1 USPQ2d 1563, 1566 (Fed.Cir.1987) (claims are not interpreted "in a vacuum," but are read and understood in light of the specification of which they are a part). The jury's finding of anticipation can not be sustained if grounded on M3's interpretation of "freely slidable," for it was not disputed that the prior art Tru-Cut needles can not slide in both directions.

2. The "Housing"

M3 Systems argues that the preamble of the '056 claims refers only to the "housing" of the tissue sampling device, and that the lack of any preamble reference to an external automatic cocking mechanism invalidates the claims by anticipation because they fail to distinguish the gun of the preamble from the prior art first generation gun.

[6] M3 Systems has incorrectly construed the claim preamble. A preamble may serve a variety of purposes, depending on its content. It may limit the scope of the claim, for example when patentability depends on limitations stated in the preamble, as in *In re Stencel,* 828 F.2d 751, 754, 4 USPQ2d 1071, 1073 (Fed.Cir.1987), or when the preamble contributes to the definition of the claimed invention, as in *Bell Communications Research, Inc. v. Vitalink Communications Corp.,* 55 F.3d 615, 620, 34 USPQ2d 1816, 1820 (Fed.Cir.1995). In this case, however, the preamble simply states the intended use or purpose of the invention, as in *Loctite Corp. v. Ultraseal Ltd.,* 781 F.2d 861, 868, 228 USPQ 90, 94 (Fed.Cir.1985). Such a preamble usually does not limit the scope of the claim unless the preamble provides antecedents for ensuing claim terms and limits the claim accordingly. In *Vaupel Textilmaschinen KG v. Meccanica Euro Italia S.P.A.,* 944 F.2d 870, 880, 20 USPQ2d 1045, 1053 (Fed.Cir.1991), for example, the preamble described a "reference point" that provided guidance in understanding and construing the claim.

[7] In the case at bar, the preamble of claim 21 recites the portion and structure of the gun housing into which the needles fit, and provides reference points in the gun that aid in defining the needles as set forth in the body of the claim. M3 Systems is incorrect in stating that the preamble must contain details of the integrated mechanical cocking structure, for the gun structure is not part of the separate claims to the needles. The question of anticipation of the '056 claims relates to the needles, not the gun. To the extent that the jury verdicts of anticipation may have been based on M3's incorrect construction of the preamble, they can not be sustained. On the correct construction of the preamble, it contributes no basis of invalidity on the ground of anticipation.

3. The On-sale Bar and "Anticipation"

[8] M3 Systems defends these anticipation verdicts by arguing that the asserted claims are anticipated because they are subject to an on-sale bar. Although ***135**135 U.S.C. § 102(b) provides that an inventor's sales or offers of sale more than one year before the patent filing date may bar the grant of a valid patent, [FN3] the on-sale bar is an independent ground of invalidity based on the inventor's delay in entering into the patent system. Although the on-sale bar can arise from one's own invention, "anticipation" does not arise from sale of one's own invention. We discuss the on-sale issue *post;* however, this aspect is unrelated to the "anticipation" verdicts, was not part of the jury

instruction on that issue, and is not based on correct law.

> FN3. § 102 A person shall be entitled to a patent unless--
> **(b)** the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States, ...

Conclusion

[9] In sum, M3 Systems directs us to no prior art or prior knowledge or use by others that constitutes substantial evidence of anticipation of the needles claimed in the '056 patent. M3's witnesses conceded that the '056 needles differ from the Tru-Cut in the flange structure for coupling to the gun for movement both toward and away from the housing, a structure that limits all claims, as well as in the additional limitation in claims 10 and 12 of a slit in the stylet head flange. It is not disputed that the Tru-Cut needle assembly lacks these elements. In view of these admitted differences between the '056 needles and the prior art, differences unambiguously stated in the ' 056 claims, the verdicts of anticipation are unsupported by substantial evidence. The judgment of invalidity on this ground is reversed.

B. Obviousness

[10] Invalidity based on obviousness is a question of law based on underlying facts. *See Graham v. John Deere Co.*, 383 U.S. 1, 17-18, 86 S.Ct. 684, 15 L.Ed.2d 545, 148 USPQ 459, 467 (1966); *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1566-68, 1 USPQ2d 1593, 1595-97 (Fed.Cir.1987). The relevant facts relate to (1) the scope and content of the prior art, (2) the level of ordinary skill in the field of the invention, (3) the differences between the claimed invention and the prior art, and (4) any objective evidence of nonobviousness such as long felt need, commercial success, the failure of others, or copying. *Graham*, 383 U.S. at 17, 86 S.Ct. 684, 148 USPQ at 467; *see Continental Can Co. USA, Inc. v. Monsanto Co.*, 948 F.2d 1264, 1270, 20 USPQ2d 1746, 1750-51 (Fed.Cir.1991).

[11][12][13] The ultimate determination of obviousness *vel non* is a legal conclusion. *See Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 297 n. 24, 227 USPQ 657, 667 n. 24 (Fed.Cir.1985). When a patent describes a new mechanical device that can be viewed as a new combination or arrangement of mechanical components, the legal conclusion of obviousness requires that there be some suggestion, motivation, or teaching in the prior art whereby the person of ordinary skill would have selected the components that the inventor selected and used them to make the new device. *See Heidelberger Druckmaschinen AG v. Hantscho Commercial Prods., Inc.*, 21 F.3d 1068, 1072, 30 USPQ2d 1377, 1379 (Fed.Cir.1994) ("When the patented invention is made by combining known components to achieve a new system, the prior art must provide a suggestion or motivation to make such a combination."); *Northern Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931, 934, 15 USPQ2d 1321, 1323 (Fed.Cir.1990) (it is insufficient that prior art shows similar components, unless it also contains some teaching, suggestion, or incentive for arriving at the claimed structure). We review a jury verdict of obviousness to determine whether substantial evidence supports the factual findings predicate to the legal conclusion of obviousness and whether such findings can support the verdict, with appropriate consideration of the presumption of validity and the requirement that obviousness be proved by clear and convincing evidence; factual inferences ***1352** are drawn and credibility determinations are accepted in favor of the verdict winner. *See Richardson-Vicks Inc. v. Upjohn Co.*, 122 F.3d 1476, 1480, 44 USPQ2d 1181, 1183-84 (Fed.Cir.1997); *Structural Rubber Prod. Co. v. Park Rubber Co.*, 749 F.2d 707, 718-19, 223 USPQ 1264, 1273 (Fed.Cir.1984).

[14] M3 Systems argued at trial that the patented needle assembly would have been obvious in light of the Tru-Cut needle assembly, and that the only differences arose from obvious adaptations to accommodate the new gun design and to provide the desired reverse movement of the needles. No other prior art was presented. The invention that was made, however, does not make itself obvious; that suggestion or teaching must come from the prior art. *See, e.g., Uniroyal, Inc. v. Rudkin-Wiley*

Corp., 837 F.2d 1044, 1051-52, 5 USPQ2d 1434, 1438 (Fed.Cir.1988) (it is impermissible to reconstruct the claimed invention from selected pieces of prior art absent some suggestion, teaching, or motivation in the prior art to do so); *Interconnect Planning Corp. v. Feil,* 774 F.2d 1132, 1143, 227 USPQ 543, 551 (Fed.Cir.1985) (it is insufficient to select from the prior art the separate components of the inventor's combination, using the blueprint supplied by the inventor); *Fromson v. Advance Offset Plate, Inc.,* 755 F.2d 1549, 1556, 225 USPQ 26, 31 (Fed.Cir.1985) (the prior art must suggest to one of ordinary skill in the art the desirability of the claimed combination).

No prior art provided a teaching or suggestion or motivation that a needle assembly should be made with the structure shown and claimed in the '056 patent. Absent this essential evidentiary component of an obviousness holding, as a matter of law the verdicts of invalidity on that ground can not stand. Consequently, the judgment of invalidity based on obviousness is reversed.

C. Inventorship

[15] The jury rendered special verdicts of invalidity of the asserted '056 claims on the ground of incorrect inventorship. Inventorship is a question of law, applied to relevant facts. Findings of relevant fact are reviewed on the standard appropriate to the trier of fact, in this case for substantial evidence. *See Hess v. Advanced Cardiovascular Sys., Inc.,* 106 F.3d 976, 980, 41 USPQ2d 1782, 1786 (Fed.Cir.), *cert. denied,* 520 U.S. 1277, 117 S.Ct. 2459, 138 L.Ed.2d 216 (1997) . The application of law to the found or admitted facts is reviewed on appeal without deference to the trier of fact. *See Ethicon, Inc. v. United States Surgical Corp.,* 135 F.3d 1456, 1460, 45 USPQ2d 1545, 1547 (Fed.Cir.1998); *Sewall v. Walters,* 21 F.3d 411, 415, 30 USPQ2d 1356, 1358 (Fed.Cir.1994).

[16] The "inventor," in patent law, is the person or persons who conceived the patented invention. *Collar Co. v. Van Dusen,* 90 U.S. (23 Wall.) 530, 563-64, 23 L.Ed. 128 (1874); *Burroughs Wellcome Co. v. Barr Lab., Inc.,* 40 F.3d 1223, 1227-28, 32 USPQ2d 1915, 1919 (Fed.Cir.1994) ("Conception is the touchstone of inventorship.") Thus facts relevant to inventorship are those showing the conception of the invention, for others may provide services in perfecting the invention conceived by another without becoming an "inventor" by operation of law. *Id.; Agawam Co. v. Jordan,* 74 U.S. (7 Wall.) 583, 602-04, 19 L.Ed. 177 (1868); *Hess,* 106 F.3d at 980-81, 41 USPQ2d at 1786- 87. As explained in *Shatterproof Glass Corp. v. Libbey-Owens Ford Co.,* 758 F.2d 613, 624, 225 USPQ 634, 641 (Fed.Cir.1985), "an inventor may use the services, ideas, and aid of others in the process of perfecting his invention without losing his right to a patent."

[17] An assertion of incorrect inventorship must be based on facts proved by clear and convincing, corroborated evidence. *Hess,* 106 F.3d at 980, 41 USPQ2d at 1786. The difficulty of determining legal inventorship has been recognized, *see Jamesbury Corp. v. United States,* 207 Ct.Cl. 516, 518 F.2d 1384, 1396, 183 USPQ 484, 489 (Ct.Cl.1975) (inventorship is one of the most difficult issues in American patent law) and, to avoid inadvertent invalidity, 35 U.S.C. § 256 permits correction of the designated inventorship ***1353** of a patent when an error was made without deceptive intent:

> **§ 256** Whenever through error a person is named in an issued patent as the inventor, or through error an inventor is not named in an issued patent and such error arose without any deceptive intention on his part, the Commissioner may, on application of all the parties and assignees, with proof of the facts and such other requirements as may be imposed, issue a certificate correcting such error.

See Stark v. Advanced Magnetics, Inc., 119 F.3d 1551, 1556, 43 USPQ2d 1321, 1325 (Fed.Cir.1997) (error in inventorship may be corrected at any time if no deceptive intent).

[18] The '154 patent as filed in the United States had named Dr. Lindgren as sole inventor. In the course of the reissue proceeding Dr. Lindgren filed a petition in the PTO to add Dan Åkerfeldt as a joint inventor. Lindgren and Åkerfeldt each filed declarations explaining their roles in the invention and declaring that the omission in naming Åkerfeldt was due to differences between United States and Swedish patent law, and was not done with intent to deceive.

M3 Systems challenged the joint inventorship of

Lindgren and Åkerfeldt, and also stated that neither one was an inventor of the '056 patent's needles, but that Alan Taylor, President of Hart Enterprises, the company Radiplast retained to manufacture its new needles in the United States, was the sole inventor. Although Mr. Taylor did not appear at the trial, he stated in a deposition that he was not an inventor, but that he suggested the slot in the stylet flange to cooperate with a guide pin in the gun and prevent rotation of the needle. He said he sketched his design for Mr. Engström, although such a sketch was not produced. M3 states that Mr. Taylor gave written notice of his claim in 1990, before the reissue application was filed, but the record citations in M3's brief do not direct us to such notice.

It has long been the rule that one who asserts "inventor" status must provide clear and convincing evidence of supporting facts, including corroborating evidence. *See Woodland Trust v. Flowertree Nursery, Inc.*, 148 F.3d 1368, 1371, 47 USPQ2d 1363, 1366 (Fed.Cir.1998) (illustrating the historical distrust of uncorroborated oral testimony of prior invention and citing the "rule of reason" analysis of corroborating evidence in *Price v. Symsek*, 988 F.2d 1187, 1194, 26 USPQ2d 1031, 1036 (Fed.Cir.1993)). At the trial Mr. Engström disputed Mr. Taylor's statements, and the earliest depiction introduced of the flange with a slot was a Swedish document.

[19] Alternatively, M3 Systems points to the design patents that were filed in the name of Åkerfeldt alone, as establishing that Dr. Lindgren was not a joint inventor of the needles with Åkerfeldt. Bard replies, and there is no dispute, that the design patents showed specific hub designs not shown in the utility patent. Whether Åkerfeldt was the sole inventor of specific hub designs does not negate his joint inventorship of the needles of the '056 patent, which are depicted and claimed broadly. Bard also stresses that if indeed there were error in inventorship, such errors are correctable and do not invalidate the patent absent deceptive intent. To invalidate a patent based on incorrect inventorship it must be shown not only that the inventorship was incorrect, but that correction is unavailable under section 256:

> **§ 256 [¶ 2]** The error of omitting inventors or naming persons who are not inventors shall not invalidate the patent in which such error occurred if it can be corrected as provided in this section....

Although M3 contends that deceptive intent can be inferred from the omission of Taylor as an inventor, precedent requires that one who claims a share of inventorship must establish that right by clear and convincing evidence. *Ethicon*, 135 F.3d at 1465-66, 45 USPQ2d at 1552; *Hess*, 106 F.3d at 980, 41 USPQ2d at 1785-86. Since such evidence was absent, the judgment of invalidity based on incorrect inventorship can not stand, and is reversed.

D. Violation of Reissue Requirements

The jury also found by special verdicts that the asserted '056 claims were invalid on ***1354** the ground that the reissue requirements were not met. M3 Systems explains in its brief that the jury found that "any purported error in the '154 patent could *not* be corrected by reissue," explaining that the errors were the error in inventorship and the error in failing to claim the needles in the original '154 patent.

[20] With respect to the argument that the correction of inventorship was improperly made by reissue, we have been directed to no legal or procedural error, for the prosecution history clearly shows that the error in inventorship was described in the reissue application and corrected by appropriate petition, filed and processed while the reissue application was pending. A petition to correct inventorship, 37 C.F.R. § 1.324 (1991), may be filed during reissue proceedings. The error in inventorship was corrected before the reissue patent was granted, and thus the reissued patent names Lindgren and Åkerfeldt as the inventors. This procedure can not have provided ground for a reasonable jury's verdicts of invalidity based on violation of reissue requirements.

[21] The other aspect that M3 Systems argued was not amenable to correction by reissue was the addition of claims to the needles per se. That argument incorrectly states the reissue law, for a primary purpose of the reissue statute is to enable the addition of claims to subject matter not claimed in the original patent. *See Scripps Clinic & Res. Found'n v. Genentech, Inc.*, 927 F.2d 1565, 1575, 18 USPQ2d 1001, 1009 (Fed.Cir.1991) (purpose of reissue statute is to avoid forfeiture of substantive rights due to erroneously claiming less than entitled, through error without intent to deceive); *In re*

Wilder, 736 F.2d 1516, 1518-19, 222 USPQ 369, 371-72 (Fed.Cir.1984) (purpose of reissue is to correct errors such as misunderstanding scope of the invention and claiming less than that to which the inventor was entitled).

[22] M3 Systems states that since the needles were not claimed originally they were not "intended" to be claimed, and that absence of such intent is not an error correctable by reissue. That too is an incorrect statement of the law. An inventor's failure to appreciate the scope of an invention at the time of the original patent grant, and thus an initial intent not to claim the omitted subject matter, is a remediable error. *See In re Amos,* 953 F.2d 613, 619, 21 USPQ2d 1271, 1276 (Fed.Cir.1991) (reissue application not subject to rejection for failure to demonstrate initial intent to claim, when subject matter of reissue claims satisfies § 112 requirements); *In re Weiler,* 790 F.2d 1576, 1581, 229 USPQ 673, 676-77 (Fed.Cir.1986) ("intent to claim" is shorthand for a means of measuring whether required error is present); *In re Hounsfield,* 699 F.2d 1320, 1322, 216 USPQ 1045, 1048 (Fed.Cir.1983) (lack of "intent to claim" is only one factor to be considered).

M3 Systems also argues that the error in failing to claim the needles should have been corrected sooner. The reissue statute sets a two-year time limit for filing a broadening reissue application. This requirement was met. *See* 35 U.S.C. § 251; *In re Graff,* 111 F.3d 874, 877, 42 USPQ2d 1471, 1473-74 (Fed.Cir.1997) (broadened claims must be filed within two years); *see also* 37 C.F.R. § 1.175 (1991). There is no requirement that a patentee act earlier rather than later during the two-year window established by statute.

M3 Systems has stated no basis in fact or law for its assertion that any reissue procedure was violated. The verdicts of invalidity on this ground are unsupported in law, and judgment based thereon is reversed.

E. The On-Sale Issue [FN4]

> FN4. This section is the dissenting opinion of Judge Newman. The court affirms the judgment of invalidity for violation of the on-sale bar, in separate opinions of Chief Judge Mayer and Judge Bryson.

The jury also found that the asserted '056 claims were invalid on the ground that the new needle assembly had been "patented or published or in public use or on sale" in the United States more than one year before the ***1355** filing date of the '154 patent application in the United States. *See* 35 U.S.C. § 102(b), *supra* note 3. Since that filing date was July 30, 1986, the critical date for bar purposes is July 30, 1985.

Although the special verdicts did not distinguish among the statutory grounds of patented or published or in public use or on sale, the major focus at trial and on appeal is the issue of on sale. While M3 Systems also argued that there was a bar based on publication and public use, the only evidence referred to relates to the first generation gun and the Tru-Cut needles, which are acknowledged prior art and are not claimed in the patents in suit. M3's argument at trial that these prior art devices were also a bar to the '056 claims under section 102(b) is not pressed on appeal.

The '154 and '056 patents are directed to the second generation gun and new needles. Before the critical date, indeed before the development of the second generation gun and new needles had been completed, Radiplast was engaged in a variety of activities directed to the United States market. These activities included demonstrating and promoting the first generation gun with the Tru-Cut needles, pursuing arrangements for clinical trials for the second generation gun and new needles through collaboration with a potential United States distributor, applying for FDA approval, arranging for manufacture of the needles in the United States, and related activities directed to commercial goals. Although Radiplast's final needle design was developed after the critical date, the issue at trial was the effect of these prior activities under the law of section 102(b).

Federal Circuit precedent on the on-sale bar requires consideration by the court of the totality of the circumstances in light of the various policies that underlie the bar. Precedent explains that "while a wide variety of factors may influence the on sale determination, no single one controls the application of section 102(b), for the ultimate

conclusion depends on the totality of the circumstances." *Ferag AG v. Quipp, Inc.*, 45 F.3d 1562, 1566, 33 USPQ2d 1512, 1514 (Fed.Cir.1995) ; *see Envirotech Corp. v. Westech Eng'g Inc.*, 904 F.2d 1571, 1574, 15 USPQ2d 1230, 1232 (Fed.Cir.1990).

Although a few cases have recognized the advantages of a bright line rule that would be applicable in all cases, that is, a defining event whereby an inventor will know when the bar will accrue, generally the court has undertaken to weigh the particular facts of the commercial activity against the particular policy considerations that apply to the situation, giving effect to the principle that "the policies or purposes underlying the on sale bar, in effect, define it." *RCA Corp. v. Data General Corp.*, 887 F.2d 1056, 1062, 12 USPQ2d 1449, 1454 (Fed.Cir.1989). Thus, in general, "this court has been careful to avoid erecting rigid standards for 102(b)." *Western Marine Elecs., Inc. v. Furuno Elec. Co.*, 764 F.2d 840, 844, 226 USPQ 334, 337 (Fed.Cir.1985); *see Petrolite Corp. v. Baker Hughes, Inc.*, 96 F.3d 1423, 1425, 40 USPQ2d 1201, 1203 (Fed.Cir.1996) ("This court has emphasized that the totality of the circumstances must be considered in determining whether a particular event creates an on-sale or public use bar." (quoting *U.S. Environmental Prods., Inc. v. Westall*, 911 F.2d 713, 716, 15 USPQ2d 1898, 1901 (Fed.Cir.1990))).

The determination of whether a product was on sale in terms of section 102(b) is a question of law. *See Micro Chem., Inc. v. Great Plains Chem. Co.*, 103 F.3d 1538, 1544, 41 USPQ2d 1238, 1243-44 (Fed.Cir.1997) (discussing precedent and applying the totality of the circumstances standard as a matter of law); *KeyStone Retaining Wall Sys., Inc. v. Westrock, Inc.*, 997 F.2d 1444, 1451, 27 USPQ2d 1297, 1303 (Fed.Cir.1993) (explaining relevant factual inquiries); *Baker Oil Tools, Inc. v. Geo Vann, Inc.*, 828 F.2d 1558, 1562- 64, 4 USPQ2d 1210, 1213-14 (Fed.Cir.1987) (discussing various factors to be weighed in context of experimental testing by third persons).

The various policy considerations include the policy of providing a limited but normally sufficient time (one-year) for the inventor to ***1356** test the commercial reception of the invention before deciding whether it warrants patenting; the policy of limiting the period during which the patentee may delay entering into the patent system for the purpose of deferring the end of the period of patent-based exclusivity; the policy favoring prompt public disclosure of inventions through the patent system; and the policy of recognizing the practical consideration whereby the value of an invention may not be known until it is publicly tested. Depending on the dominant policy considerations in the particular case, applied to the factual circumstances of that case, the Federal Circuit has reached a variety of conclusions as to when the on-sale bar arose. The court's precedent illustrates rulings ranging from the requirement that the patented product was produced and available commercially before the on-sale bar started to accrue, to rulings that the bar was triggered before the invention had been completed.

Before the critical date for the '056 patent, July 30, 1985, three sets of events were explored at trial. The facts are not in dispute; the question is whether, as a matter of law, the on-sale bar arose in these circumstances:

1. The Clinical Trials

The clinical trials were arranged by American Pharmaseal, Radiplast's potential distributor in the United States, and were conducted in August and September 1985 (after the critical date) using the second generation guns and new needles. In January 1985 Thomas Engström of Radiplast had quoted to Pharmaseal the price for 12 guns and 500 needles for use in the trials. Pharmaseal later that spring requested 10 guns and 250 needles, for which Radiplast sent an invoice in June 1985. Mr. Engström testified that this payment was to defray some of Radiplast's costs in providing these devices, and was so understood. It was not disputed that the transaction produced no profit for Radiplast.

M3 Systems asserts that Radiplast sold the 10 guns and 250 needles to Pharmaseal, pointing out that a standard sales invoice was used. Bard replies that this was a transaction between collaborators, not a commercial sale and not a sale for commercial distribution. Dr. Lindgren testified that he visited the four United States hospitals that were testing the device (after the critical date), to explain its use and to see how it worked in different tissues, operated

by different doctors. Bard stresses that the devices were not sold, that all but one were returned by the hospitals after the clinical trials, and unused needles were destroyed.

Generally cost defrayal arrangements between collaborators are not deemed to be invalidating sales, nor are payments for use substantially for test purposes. *See In re Mahurkar,* 71 F.3d 1573, 1577, 37 USPQ2d 1138, 1142 (Fed.Cir.1995) (actual sale of two prototype catheters "did not place the invention in the public domain or lead the public to believe that the device was freely available"); *Ethicon, Inc. v. United States Surgical Corp.,* 762 F.Supp. 480, 506-07, 19 USPQ2d 1721, 1740 (D.Conn.1991) (clinical tests by surgeon not a public use under § 102(b)), *aff'd,* 965 F.2d 1065 (Fed.Cir.1992) (Table); *Baker Oil Tools,* 828 F.2d at 1564, 4 USPQ2d at 1214 (discussing factors in deciding whether the purpose of testing was primarily experimental). In its submissions to the PTO during the reissue proceeding Radiplast characterized the transaction concerning the 10 guns and 250 needles as for experimental purposes.

It is not disputed that the sole purpose of this transaction was to make the devices available to the four selected hospitals for a limited test period. Radiplast's arrangement with Pharmaseal for payment or defrayal of the cost of providing the devices was not a sale or offer of sale as contemplated by section 102(b). It contravenes none of the policies underlying the on sale bar for Radiplast to have recouped these costs. Upon considering the totality of the circumstances, I conclude that an on-sale bar did not arise based on this transaction between Radiplast and Pharmaseal in connection with the clinical trials.

***1357 2. The Bulk Price Quotation**

In January 1985 Radiplast quoted to Pharmaseal prices for various bulk quantities of up to 50,000 needles. At that time the new needles were still being modified, and the record shows that design changes were made well after January 1985. Mr. Engström of Radiplast testified that the quotation was information for a potential distributor, in the event that Pharmaseal accepted that role (it did not). The bulk price quotations were in a telex that stated, "This is to give you an indication of the price levels. We have to meet and discuss more in detail all things related with the marketing of our biopsy instrument in US." It was not disputed that the quotation was for modified needles, and that both parties understood that the modified needles were not yet available.

M3 Systems argues that since the first generation device had been shown to operate for its intended purpose using Tru-Cut needles, the inventor had already convinced himself that he had a satisfactory product that he wished to commercialize in the United States, and thus that the bulk price quotation, even if for needles not yet developed, was an on-sale event. M3 stresses that the price quoted for bulk quantities included a profit for Radiplast, unlike the price for the clinical trial quantities.

Quotation of a sales price to a potential distributor of a product that is not available for sale and distribution does not of itself establish an on-sale bar. *See Continental Can,* 948 F.2d at 1270, 20 USPQ2d at 1750 (price terms set between collaborators in joint research not an on-sale bar); *Shatterproof Glass,* 758 F.2d at 622, 225 USPQ at 639 ("clear weight of authority is that a bare offer to sell does not ipso facto satisfy the 'on sale' bar"). A primary policy served by the on-sale bar is to provide time for an inventor to determine the reception of his invention in the marketplace before entering into the patent system, while the one-year limit prevents undue lengthening of the period of exclusivity. The policy is served when cognizance is taken of whether the invention is ready for commercial use at the time that customer contacts are made. Although exceptions have arisen on particular facts, normally the on-sale bar does not accrue based on customer contacts made while the product is still being developed or tested. *See KeyStone,* 997 F.2d at 1451, 27 USPQ2d at 1303 (on-sale bar "requires that the device asserted to be on sale was operable"); *Seal-Flex Inc. v. Athletic Track & Court Constr.,* 98 F.3d 1318, 1322, 40 USPQ2d 1450, 1452 (Fed.Cir.1996) (invention not completed if it required testing under conditions of actual use).

In this case, the circumstances of the incomplete stage of development of the second generation gun and proposed new needles at the time of this price quotation, the potential but not established distributor relationship underlying this quotation,

the planned clinical collaboration, and the non-existence of a completed final product, negate the accrual of an on-sale bar from this price quotation. It seems clear that neither Radiplast nor Pharmaseal expected that this bulk price quotation would be followed by the placement of an order. To satisfy the on-sale requirement of section 102(b) there must be more than an informational exchange of price information, when there is no reasonable contemplation that the quotation will be followed by purchase and sale as a commercial transaction.

I conclude that the verdicts of invalidity based on the on-sale bar can not be supported by this bulk price quotation.

3. The Correspondence with Dr. Phelps

The third event raised by M3 Systems occurred in November 1984. Mr. Engström of Radiplast responded to a letter written in September 1984 by Dr. Phelps, a physician in Alabama, who had seen a demonstration and brochure for the first generation device and wrote to Sweden for information. Engström wrote back that he hoped to start marketing a second generation device and new needles in the United States in early 1985, and that if Dr. Phelps did not wish to wait until United States distribution was arranged he could ***1358** order directly from Sweden; the letter quoted prices for a gun and needles. No further correspondence ensued. Dr. Phelps testified that he expected that had he sent an order it would have been filled, and that he knew nothing about the difference between "generations." Mr. Engström testified that neither the new needles nor the completed second generation gun was available when he answered Dr. Phelps.

An offer of sale originating in a foreign country, directed to a consumer in the United States, can establish an on-sale bar as to what was offered. *In re Caveney,* 761 F.2d 671, 676-77, 226 USPQ 1, 4 (Fed.Cir.1985). The demonstration and brochure that led to Dr. Phelps' inquiry were of the first generation device, which used Tru-Cut needles. Although the details of Radiplast's product changes were not explained to Dr. Phelps it was undisputed that an order, if placed, could not have been filled at that time with the second generation gun and needles. *Cf. King Instrument Corp. v. Otari Corp.,* 767 F.2d 853, 860, 226 USPQ 402, 407 (Fed.Cir.1985) (finding it significant that purchaser could discern that it was the later-patented invention being offered for sale).

At the time of Mr. Engström's letter the second generation device and needles were in an early development stage. Although Dr. Phelps was not told the details of these developments, this correspondence did not raise an on-sale bar to a product not yet developed. As held in *Robotic Vision Sys., Inc. v. View Eng'g, Inc.,* 112 F.3d 1163, 1167-68, 42 USPQ2d 1619, 1623 (Fed.Cir.1997), "subsequent completion of an invention after the critical date does not relate back to the date of an earlier alleged offer of sale." *See also Micro Chem.,* 103 F.3d at 1544-45, 41 USPQ2d at 1243 (no on-sale bar when invention not completed at time of offer, only prototype and sketch of proposed configuration); *Shatterproof Glass,* 758 F.2d at 622, 225 USPQ at 639 (not an on-sale bar to solicit orders before invention completed); *cf. Pfaff v. Wells Elecs., Inc.,* 124 F.3d 1429, 43 USPQ2d 1928 (Fed.Cir.1997), *cert. granted,* 523 U.S. 1003, 118 S.Ct. 1183, 140 L.Ed.2d 315 (1998) (No. 97- 1130) (although invention not reduced to practice because no physical embodiment had been made, the firm purchase order and delivery date accrued the on-sale bar) (citing *UMC Elecs. Co. v. United States,* 816 F.2d 647, 2 USPQ2d 1465 (Fed.Cir.1987)). On the totality of the circumstances, considering the relevant policies and the undisputed facts, I conclude that this letter to Dr. Phelps, written in response to an inquiry about the first generation device, which resulted from a brochure on the first generation device, stating the price for the second generation device and needles before they were fully developed and before they were available, did not trigger the on-sale bar.

Upon *de novo* review of the totality of the circumstances, with due consideration to the applicable policies, the undisputed facts, and drawing factual inferences in favor of the verdicts, I conclude that the verdicts of invalidity based on a section 102(b) bar are incorrect; I would reverse the judgment on that ground. [FN5]

FN5. The three different views in the three opinions of this panel on the on-sale issue point up the need for a more certain law than today exists. Inventors and those who

> commercialize inventions should reasonably know when the on-sale bar starts to accrue, instead of awaiting litigation- borne *post hoc* judicial evaluations of the totality of the circumstances, varying with the nature of the invention, the nature of the customer contact, and the judicial weight given to the conflicting policy interests.
>
> I favor, as simple and fair, the bright line rule that for the § 102(b) on-sale bar to accrue the invention must exist in commercial form when the offer of sale is made. This rule would implement the dominant policy of providing a one-year grace period for determining the performance of the product in the marketplace.

II
INFRINGEMENT OF THE '056 PATENT

In view of the majority's affirmance of the judgment of invalidity, we do not reach the issue of infringement of the '056 patent. That judgment is vacated.

*1359 III
VALIDITY OF THE '308 PATENT

The '308 patent is directed to the third generation gun. The jury found the asserted claims of the '308 patent not infringed, and invalid or unenforceable on the grounds of anticipation, obviousness, and insufficient supporting description, as well as for fraud, misuse, and violation of antitrust law, as discussed in Parts V-VII, *post.*

Claims 15 and 16 were at issue, with emphasis added to show the claim terms whose construction is relevant to the issues of patent validity or infringement:

15. A tissue sampling device comprising:
a guide sleeve having front and rear guide sleeve ends and defining a longitudinal axis extending between said front and rear guide sleeve ends, said front guide sleeve end having an opening therethrough;
a hollow first needle positioned within said guide sleeve and extendable from said opening, said hollow first needle being moveable along said axis;
a second needle extending through said hollow first needle and moveable along said axis, said second needle having a tip which is extendable from said hollow first needle and said opening, and said second needle further including a tissue sample receiving recess;
a first needle head coupled to said hollow first needle and *mounted within said guide sleeve* for movement along said axis to move said hollow first needle along said axis;
a second needle head coupled to said second needle and *mounted within said guide sleeve* for movement along said axis to move said second needle along said axis;
a first spring *disposed within said guide sleeve* and operatively associated with said second needle head, said first spring being capable of being placed into an energized mode to store energy, and said first spring being releasable from said energized mode to propel said second needle head along said axis towards said opening, such that said tip of said second needle is extended from said hollow first needle, whereby a tissue sample can be captured within said recess;
a second spring *positioned within said guide sleeve* and operatively associated with said first needle head, said second spring being capable of being placed into an energized mode to store energy, and said second spring being releasable from said energized mode to propel said first needle head along said axis towards said opening, said hollow first needle being extended from said opening such that said recess of said second needle is enclosed by said hollow first needle;
a first latch means selectively releasable from outside said guide sleeve for releasably holding said first spring in said energized mode;
a second latch means for releasably holding said second spring in said energized mode, said second latch means being releasable in response to and subsequent to release of said first spring; and
sequential energizing means operative to move said first needle head along said axis towards said rear guide sleeve end to cause said second latch means to hold said second spring in said energized mode, *and subsequently to move said second needle head* along said axis towards said rear guide sleeve end to cause said first latch means to hold said first spring in said energized

mode.

Claim 16 is the same as claim 15 except for the last clause, which includes the selective retraction of the stylet to expose the tissue sample:

> **16.....** *energizing means operative to move said first needle head and said second needle head* along said axis towards said rear guide sleeve end to cause said first latch means to hold said first spring in said energized mode and to cause said ***1360** second latch means to hold said second spring in said energized mode, said energizing means being selectively operative to move said first needle head but not said second needle head towards said rear guide sleeve end, whereby said hollow first needle is selectively retractable to expose said tissue sample receiving means in said second needle.

A. Support by the Written Description

[23] The jury found claims 15 and 16 "not supported by the description contained in the specification." M3 Systems explains that the issue was the meaning of the claim terms "sequential energizing" and "energizing means." The district court had permitted the jury to resolve this disputed issue of claim construction. On this appeal we give *de novo* review to the issues relevant to the construction and interpretation of the claims. *See Cybor,* 138 F.3d at 1454-56, 46 USPQ2d at 1172-75.

M3 Systems states that "sequential" should be construed, and was construed by the jury, to permit no overlap of needle movement during the energizing step. M3 states that since the patent shows that the second needle can start to move before the first needle has completed its movement, the written description does not support the claims. M3 states, as it did at trial, that since the specification does not describe how to obtain elimination of all overlap of needle movement, the claims are not supported by the written description and are invalid.

Bard agrees that the specification shows a slight overlap in the movement of the needles, whereby the second needle starts to move just before the first needle has completed its movement and the first spring latches. Thus, Bard contends, correct interpretation of the claims allows for this slight overlap in needle movement. Bard states that it is incorrect to construe the claims contrary to the specification, and then to hold the claims invalid because they are contrary to the specification. Bard is of course correct; the claims are construed in accordance with the rest of the specification of which they are a part, and not contrary to it. *See Slimfold Mfg.,* 810 F.2d at 1116, 1 USPQ2d at 1566; *SRI Int'l v. Matsushita Elec. Corp. of Am.,* 775 F.2d 1107, 1125, 227 USPQ 577, 585 (Fed.Cir.1985) (in banc).

The specification illustrates the sequential energizing of the needles as having some overlap in movement of the needles. The term "sequential" in the claims is in accordance with this description in the specification; no usage or exemplification of the sequential movement requires eliminating all overlap. It is incorrect to construe the claims as barring all overlap, as urged by M3 Systems. On the correct claim construction, no reasonable jury could have found that the claims are not supported by the description in the specification. It is thus apparent that the jury either adopted M3's erroneous claim construction, or incorrectly applied the law governing claim construction to the undisputed facts of the structure described in the specification.

On the correct claim construction the written description is in accordance with and in support of the claims. The judgment of invalidity on this ground is reversed.

B. Anticipation

[24] The jury also found claims 15 and 16 invalid based on anticipation. "Anticipation" requires that the identical invention was already known to others, that is, that the claimed invention is not new. *See Minnesota Mining & Mfg. Co. v. Johnson & Johnson Orthopaedics, Inc.,* 976 F.2d 1559, 1572, 24 USPQ2d 1321, 1332 (Fed.Cir.1992) ("In order to anticipate, the [reference] must sufficiently describe the claimed invention to have placed the public in possession of it.") M3 Systems argued that anticipation arose on the published PCT application describing the first generation biopsy gun, and on the device itself. It was not disputed, however, that the first generation gun lacks the integrated mechanical energizing structure described and claimed in the '308 patent, and that the PCT application does not show such structure.

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(Cite as: 157 F.3d 1340)

***1361** M3 Systems' argument was that when the claims are correctly construed they are anticipated. M3 states that on the claim construction reached by the jury in finding claims 15 and 16 unsupported by the written description, whereby the term "sequential" is defined as barring all overlap in needle movement, the structure in the specification is inconsistent with the claims and therefore must be disregarded. M3 argues, as we understand it, that since "energizing means" and "sequential energizing means" are in means-plus- function form, it is appropriate to disregard the structure in the specification that is inconsistent with the claim language, leaving the claimed functions with "*no* disclosed supporting structure," quoting from M3's brief. Thus, according to M3, these claim terms are directed only to function, and can be anticipated by any prior art that shows the function of energizing or sequential energizing, without limit to how that function is performed. Thus M3 argues that since the PCT application and the first generation gun are manually sequentially energized, one spring at a time, the jury correctly found anticipation by the first generation gun and the PCT application.

Indeed, the jury verdicts can be understood only if one adopts so tortured a view of the law. As we have discussed, it is incorrect to construe claims contrary to the specification, and it is incorrect to construe terms in means-plus-function form as disembodied from the structure in the specification. M3 Systems' witnesses readily admitted that the integrated mechanized gun described and claimed in the '308 patent is different from the first generation gun and the description of that gun in the PCT application. On the undisputed facts and the correct law, a reasonable jury could not have found the '308 claims anticipated thereby. The judgment of invalidity for anticipation must be reversed.

C. Obviousness

[25] M3 Systems argues that the third generation gun of the '308 patent would have been obvious in view of the PCT application and the first generation gun, in combination with the '154 patent describing the second generation gun. M3 states that the third generation is an obvious combination of elements found in the first and second generations. See discussion, Part I.B. *ante,* of the law of obviousness. There was no dispute as to the scope and content of this prior art, or as to the elements in the third generation gun that were not in either the first or second generations. The only dispute was the ultimate question of whether the third generation gun would have been obvious from what had gone before.

M3 Systems contends that for the third generation the inventor simply changed the integrated mechanical cocking mechanism of the second generation gun to accomplish mechanically the sequential cocking that was necessarily done when the first generation gun was manually cocked, one spring at a time. Bard replies that the one-at-a-time cocking of the springs in the first generation, by hand or by miniature crowbar, does not teach or suggest the integrated automatic sequential cocking of the third generation, and that there is no teaching or suggestion in the prior art to make such a combination, or of the structure having the improved ease of handling of the third generation gun. Bard also points to the other new structural features of the third generation whereby the needles can be retracted separately after tissue sampling.

The ultimate question is whether, from the evidence of the prior art and the knowledge generally available to one of ordinary skill in the relevant art, there was in the prior art an appropriate teaching, suggestion, or motivation to combine components in the way that was done by the inventor. *See, e.g., Uniroyal,* 837 F.2d at 1050, 5 USPQ2d at 1438; *ACS Hosp. Sys., Inc. v. Montefiore Hosp.,* 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed.Cir.1984). The ultimate determination of obviousness is a legal conclusion. When this legal conclusion is drawn by the jury the verdict is reviewed, as discussed in Part I.B, to determine whether substantial evidence supports the factual findings necessary to support the legal conclusion, with due consideration ***1362** to the presumption of validity and the standard of proof.

Bard points out that its rotating sleeve mechanism for sequential energizing is a marked distinction from its earlier devices, even were the concept of sequential energizing deemed to be derivable from the manual operation of the first generation. M3 Systems does not cite any reference suggesting the structure employed in the third generation gun, or any suggestion of mechanical sequential energizing, or indeed the other features of the third generation. Those contributions came from the inventor, not the

prior art. *See Uniroyal,* 837 F.2d at 1050, 5 USPQ2d at 1438. We have been directed to no teaching or suggestion of this combination in the descriptions of the first and second generation guns, viewed separately or together. Thus the verdicts of invalidity on the ground of obviousness are without essential factual support, and can not stand.

IV
INFRINGEMENT OF THE '308 PATENT

[26] The jury found that M3 Systems did not infringe claims 15 and 16 of the '308 patent. Because the special verdicts discussed in Part III.A (that there is not support for these claims in the written description) require an incorrect claim construction, we have reviewed the verdicts of noninfringement on the correct construction, *i.e.,* that claims 15 and 16 do not require a total absence of overlap in the sequential movement of the needles during energizing. Bard contends that on the correct claim construction the verdicts of noninfringement can not stand. Bard is entitled to a new trial if a jury reasonably could have reached verdicts of infringement upon correct claim construction and correct application of the law of infringement. However, if only one result is supportable in law and on undisputed facts, judgment as a matter of law is appropriate. *See Strattec,* 126 F.3d at 1419, 44 USPQ2d at 1036.

[27] On appeal Bard argues only the issue of sequential energizing, asserting literal infringement under section 112 paragraph 6. M3 Systems does not dispute, and indeed emphasizes, that in its ProMag devices there is sequential energizing with a slight overlap in needle movement. However, M3's performance of the function of sequential energizing was not the only disputed issue with respect to infringement. M3 also points out that its device is a box-type biopsy gun and does not contain a "guide sleeve" as required by the claims, and that the M3 ProMag guns use linear tensioning whereas the '308 device performs counter-rotational tensioning, such that the structure used by M3 is not equivalent to that shown in the '308 specification, applying section 112 paragraph 6 to the energizing means of the '308 claims.

M3 Systems states that the '308 patent draws a distinction between box-type biopsy guns such as those made by M3 wherein the housing is merely a container for the device, and guns embodying a mechanism wherein the guide sleeve and a tensioning sleeve interact and serve as part of the cocking mechanism. M3 argued at trial that its housing is independent, whereas in the '308 specification the gun is housed in a two-part structure wherein the inner part is the guide sleeve and the outer part is the tensioning sleeve and rotates about the inner part. These sleeves bear cam surfaces and slots that interact with the flanges on the needle heads and thus serve as part of the cocking mechanism. M3 states that its gun has neither a guide sleeve nor a tensioning sleeve, and that its housing is merely the container for the device, and is unconnected with the cocking mechanism.

Although the claims in suit do not require a tensioning sleeve, *see D.M.I., Inc. v. Deere & Co.,* 755 F.2d 1570, 1574, 225 USPQ 236, 239 (Fed.Cir.1985) (improper to import limitation from one claim into another claim lacking the limitation), the guide sleeve is described in the specification as "the inner sleeve or guide sleeve." The specification shows and the claims require that the guide sleeve perform a guiding function for the cocking mechanism. Bard does not assert that such a structure is found in the M3 ***1363** guns. Nor does Bard raise on this appeal any issue of equivalency under the doctrine of equivalents.

[28] At the trial the parties presented evidence on how the patented and accused devices worked, and the court instructed the jury as to the applicable law of infringement of means-plus-function claims. For the energizing means Bard was required to establish, by a preponderance of evidence, that M3 Systems' device embodies the structure described in the '308 specification or an equivalent thereof. 35 U.S.C. § 112 ¶ 6; *Valmont Indus., Inc. v. Reinke Mfg. Co.,* 983 F.2d 1039, 1041-42, 25 USPQ2d 1451, 1453-54 (Fed.Cir.1993); *Texas Instruments, Inc. v. United States Int'l Trade Comm'n,* 805 F.2d 1558, 1562-63, 231 USPQ 833, 834-35 (Fed.Cir.1986). Since the structure of the M3 energizing means is not the same as that described in the '308 specification, the issue was whether the structures are equivalent. *See D.M.I.,* 755 F.2d at 1575, 225 USPQ at 239 ("[T]he sole question is whether the single means in the accused device which performs the function stated in the claim is the same as or an equivalent of the corresponding

structure described in the patentee's specification as performing that function.") The determination of infringement under section 112 paragraph 6 is a factual question. *In re Hayes Microcomputer Prods. Inc. Patent Litig.*, 982 F.2d 1527, 1541, 25 USPQ2d 1241, 1251 (Fed.Cir.1992); *Intel Corp. v. United States Int'l Trade Comm'n,* 946 F.2d 821, 841, 20 USPQ2d 1161, 1178 (Fed.Cir.1991); *D.M.I., supra.*

[29] There was no dispute that the function of sequential energizing is performed in the M3 Systems' guns; the only question was whether the M3 guns employ the same or an equivalent of the structure described in the '308 specification. The accused equivalent structure need not have been known at the time the patented invention was made. *See Texas Instruments,* 805 F.2d at 1563-64, 231 USPQ at 834-35 ("It is not required that those skilled in the art knew, at the time the patent application was filed, of the asserted equivalent means of performing the claimed functions....")

[30] It was explained at trial that to achieve sequential energizing in the '308 device the outer tensioning sleeve is rotated about the inner guide sleeve; cam surfaces on the interior of the tensioning sleeve push against wings built directly into the needle heads to compress the two springs in sequence, pressing them rearward into the locked position. In contrast, in the M3 Systems device a handle connected through the rear of the housing acts on sleds bearing the needles; M3's device relies on the lever-action of the handle, as opposed to a rotating sleeve, to pull, rather than push, the needle sleds sequentially back toward their respective latches. Bard had argued at trial, in connection with the issue of validity, that the claims "must be interpreted as means-plus-function terms in accordance with *Valmont,*" and cited its "external integrated energizing mechanism that converts rotary motion to linear motion" to distinguish the '308 gun from its own earlier device. Claims must be interpreted the same way for determining infringement as was done to sustain their validity.

A reasonable jury could have found that the structure using rotational tensioning as the energizing means is substantially different from the energizing structure in the M3 Systems guns. Although Bard argues that it suffices for infringement if the energizing is achieved with the slight overlap shown in the '308 patent, that is, if the function of sequential energizing is performed, claims written in the form authorized by section 112 paragraph 6 are limited by the structure described and equivalents of that structure. Performance of the same function does not of itself establish infringement.

Bard directs us to the doctrine of claim differentiation, and argues that it is incorrect to interpret the "sequential energizing means" of claim 15 as limited to the structure in the specification, because other claims, not at issue, specifically state that structure. Bard argues that its claims in suit are broader ***1364** in that they state only the function of sequential energizing, and that they therefore warrant broader scope than the claims that state a specific energizing structure. However, as we have discussed, claims that are written in the form authorized by section 112 paragraph 6 are by statute limited to the structure described in the specification and equivalents of that structure. As discussed in *Laitram Corp. v. Rexnord, Inc.,* 939 F.2d 1533, 1538, 19 USPQ2d 1367, 1371 (Fed.Cir.1991) a "means-plus-function limitation is not made open-ended by the presence of another claim specifically claiming the disclosed structure which underlies the means clause or an equivalent of that structure."

Applying this law, and based on the absence of a guide sleeve or any counterpart structure, and the differences in the structures of the energizing mechanisms, we conclude that on the correct claim interpretation a reasonable jury could find that claims 15 and 16 are not infringed. The judgment of noninfringement of the '308 patent is affirmed.

V
FRAUD

M3 Systems charged that Bard had committed both fraud and inequitable conduct in prosecuting the '056 and '308 patents. The jury was not asked to decide the issue of inequitable conduct, which was reserved to the judge and withdrawn by M3 after the favorable verdicts on the question of fraud. The jury found that it had been established by clear and convincing evidence that each of the '056 and the '308 patents had been procured by fraud in the Patent and Trademark Office.

[31] Fraud in the procurement of a patent requires proof of the elements of fraud as developed in the common law: (1) that a false representation of a material fact was made, (2) with the intent to deceive, (3) which induced the deceived party to act in justifiable reliance on the misrepresentation, and (4) which caused injury that would not otherwise have occurred. *See Nobelpharma AB v. Implant Innovations, Inc.*, 141 F.3d 1059, 1069-70, 46 USPQ2d 1097, 1105-06 (Fed.Cir.1998); *Norton v. Curtiss*, 57 C.C.P.A. 1384, 433 F.2d 779, 792-94 & n. 12, 167 USPQ 532, 543-45 & n. 12 (CCPA 1970) (citing W. Prosser, *Law of Torts* §§ 100-05 (3d ed.1964)).

[32][33][34] The tort of fraud requires that there was a successful deception, and action taken by the person deceived that would not have otherwise been taken. Applied to patent prosecution, fraud requires (1) a false representation or deliberate omission of a fact material to patentability, (2) made with the intent to deceive the patent examiner, (3) on which the examiner justifiably relied in granting the patent, and (4) but for which misrepresentation or deliberate omission the patent would not have been granted. A finding of fraud can of itself render the patent unenforceable, and when accompanied by the elements of violation of the Sherman Act, as discussed in Part VI, can incur additional consequences.

[35] To establish fraud for purposes of antitrust violation the defendant "must make a greater showing of scienter and materiality" than when seeking unenforceability based on conduct before the Patent Office. 6 Donald S. Chisum, *Chisum on Patents* § 19.03[6][e] (rel. 47 1993) (citations omitted). In *Walker Process Equip., Inc. v. Food Mach. & Chem. Corp.*, 382 U.S. 172, 177, 86 S.Ct. 347, 15 L.Ed.2d 247, 147 USPQ 404, 407 (1965) the Court clarified that "knowing and willful" fraud must be shown, and is predicate to potential antitrust violation. As explained in *Handgards, Inc. v. Ethicon, Inc.*, 601 F.2d 986, 996, 202 USPQ 342, 351 (9th Cir.1979), "[t]he road to the Patent Office is so tortuous and patent litigation is usually so complex, that 'knowing and willful fraud' as the term is used in *Walker* can mean no less than clear, convincing proof of intentional fraud involving affirmative dishonesty, 'a deliberately planned and carefully executed scheme to defraud * * * the Patent Office.' ... Patent fraud cases prior to *Walker* required ***1365** a rigorous standard of deceit.... *Walker* requires no less." (Emphasis and elisions in original.) The requirements of common law fraud are in contrast with the broader sweep of "inequitable conduct," an equitable defense that may be satisfied when material information is withheld with the intent to deceive the examiner, whether or not the examiner is shown to have relied thereon. *See Kingsdown Med. Consultants v. Hollister, Inc.*, 863 F.2d 867, 872, 9 USPQ2d 1384, 1389 (Fed.Cir.1988).

[36][37] M3 Systems stated that Bard made myriad material misrepresentations in prosecuting the '056 and the '308 patents, including the following: the incorrect inventors were named; actual samples of the Tru- Cut needles and the first generation device were not provided to the examiner; the Baxter patent on the Tru-Cut needle and two Lindgren articles on the first generation device were not provided to the examiner; the material submitted to the FDA was not provided to the examiner; the examiner was not told of the co- pending design patents; and the examiner was not provided with all of the evidence on the on-sale issue. Bard responded that there is no substance to any of these assertions; that all material information was presented to the examiner; that there was no intent to deceive the examiner; that the examiner was not deceived; and that the evidence points to good faith in the prosecution of these patents. Good faith is an absolute defense to the charge of common law fraud. *See Walker Process*, 382 U.S. at 177, 86 S.Ct. 347, 147 USPQ at 407.

[38][39] M3 Systems argues that any omission in the submissions to the PTO is "necessarily material, because the allowance of the application is the intended natural consequence of that submission." That is not a correct statement of the law. There is no presumption that information not filed by an applicant was material simply because patentability ensued. To establish culpability any omission must be of a fact material to patentability and it must be a deliberate misrepresentation, whether by omission or misstatement, that was intended to and did mislead the examiner into taking favorable action that would not otherwise have been taken. Intent to mislead or to deceive must be proved by clear and convincing evidence. *See Walker Process, supra.* Deceptive intent is not inferred simply because information was in existence that was not presented

to the examiner; and indeed, it is notable that in the usual course of patent prosecution many choices are made, recognizing the complexity of inventions, the virtually unlimited sources of information, and the burdens of patent examination. *See Northern Telecom,* 908 F.2d at 939, 15 USPQ2d at 1327 (discussing the ease with which routine patent prosecution may be portrayed as tainted conduct).

Following are the actions that M3 Systems presented as probative of fraud in the prosecution of the '056 or the '308 patent:

1. The Inventorship Issue

This issue was discussed *ante* in connection with the validity of the '056 patent. There was no evidence of intent to deceive in correcting the inventorship to include Mr. Åkerfeldt with Dr. Lindgren as joint inventors. The question of Mr. Taylor's role as a possible inventor did not present substantial evidence of fraud. Indeed, since the inventorship issue was not grounds of invalidity, it can not satisfy the "but for" test of fraud.

2. Provision of Actual Models to the Examiner

M3 Systems argued that Bard should have provided the reissue examiner with actual models of the first generation gun and the Tru-Cut needles, in addition to the PCT application and publications describing the needles. The PCT application described the first generation gun, and descriptions of the Tru-Cut needles were before the examiner. Reviewing the prosecution history we do not discern substantial evidence of material withholding, for cumulative information is not material to patentability, and there was no evidence of deceptive intent or that the examiner was deceived into granting the reissue. ***1366** This issue can not support the verdict of fraud.

3. Provision of On-Sale Information to the Examiner

Bard filed with the PTO descriptions of the transactions involving Radiplast and Pharmaseal before the critical date, accompanied by documents including the invoice for the 10 guns and 250 needles for the clinical trials, the bulk price quotation discussed *ante* in connection with the on-sale issue, and declarations concerning the hospital tests and the proposed distribution relationship between Radiplast and Pharmaseal. M3 Systems states that Bard should have also disclosed to the PTO Radiplast's sales activities for the first generation device, Radiplast's letters to doctors concerning the clinical trials, the fact that the bulk price quotation included a profit, and Radiplast's letter to Dr. Phelps.

Concerning Dr. Phelps, Bard answers that it submitted to the PTO all the relevant material it had obtained. The letter to Dr. Phelps was obtained after suit was filed, during discovery of Radiplast's files in Sweden. There was no evidence that Bard had obtained and withheld this information during the reissue prosecution. With respect to the bulk price quotation, M3 Systems states that Bard should have flagged this document and described its significance to the examiner, lest it be overlooked in the volume of paper. Bard responds that the documents provided to the examiner were a record of Radiplast's efforts to find a distributor and its transactions with Pharmaseal, and that the total number of documents was not so voluminous, or the contents so difficult to understand, as to support an inference of intentional concealment of any particular document that was filed. We agree that these documents, all in the prosecution history, are easily read. [FN6]

> FN6. The record provided us does not show any response from the PTO. Although Bard states that "the [PTO] determined that the transfers to American Pharmaseal [ ] were for primarily experimental purposes and therefore did not trigger the bar," the record citations do not relate to this statement.

On reviewing these filings in the PTO we have been directed to no evidence of material withholding or the provision of false information, or of intent to deceive or actual deception. The additional subject matter that M3 states should have been included was not shown to be material or other than cumulative. These actions did not constitute substantial evidence of fraud.

4. Disclosure of the Information Filed with the FDA

None of the material provided us with respect to Radiplast's 510(k) pre-market notification filed with the Food & Drug Administration supports a finding of fraud in the patent prosecution. M3 Systems concentrates on the presence in this package of needle drawings made by Hart Enterprises, the designated manufacturer. As we have explained, the inventorship issues that have been raised do not provide substantial evidence of fraudulent procurement of these patents.

5. Disclosure of the PCT Application

The PCT application had been submitted to the PTO during prosecution of the '154 patent and again during the '056 reissue proceedings. M3 Systems states that Bard withheld the PCT application from the examiner of the '308 patent and then mischaracterized it.

M3 Systems stated at trial and repeats on this appeal that Bard submitted the PCT application to the examiner of the '308 patent only after allowance of the '308 claims in suit, and then falsely represented that it was relevant solely to newly added claims 21-23 (as then numbered). Bard complains that M3 misstated at trial, and continues to misstate, these facts. We must agree. The '308 prosecution history in the record shows that Bard cited the PCT application and filed a copy thereof with a Supplemental Information Disclosure Statement accompanying Bard's first response, filed October 13, 1989, to the ***1367** first Office Action. Contrary to M3's statements, the prosecution record shows that no claims had been allowed or held allowable when the PCT application was submitted to the PTO.

In submitting the PCT Application Bard's patent attorney pointed out the aspect of that application that M3 Systems has stated is of greatest significance, *viz.*, the separate and thus sequential hand cocking of the springs in the first generation device. In the Remarks section of the response Bard discussed claims 21-23, the claims specific to sequential energizing. We discern no support for M3's argument that Bard misrepresented the content of the PCT application, or that the examiner did not consider the PCT application adequately. The examiner initialed on December 15, 1989 that he had considered this reference, the same day a telephone interview was held that led to an examiner's amendment, followed by allowance on January 3, 1990. The charge of fraud based on these events is totally without substance.

Conclusion

These asserted flaws in patent prosecution, separately or taken together, do not constitute substantial evidence of fraud. The verdicts of fraud in procuring the '056 and '308 patents can not stand, and the judgment on these verdicts is reversed.

VI
ANTITRUST ISSUES

Antitrust violation was found on special verdicts that Bard by anticompetitive conduct had monopolized or attempted to monopolize the relevant markets for each of fully automated biopsy guns and needles, guns alone, and replacement needles. The jury instructions on the antitrust count identified three separate claims; first, that the patents were procured by fraud followed by attempts to enforce the fraudulently procured patents; second, that Bard threatened and then brought suit knowing that its patents were invalid, unenforceable, or not infringed; and third, that Bard unlawfully leveraged its monopoly power in the guns to obtain a competitive advantage in replacement needles by modifying its gun to accept only Bard needles. The jury found in favor of M3 Systems and against Bard on every question, and assessed compensatory damages, measured primarily as litigation costs, of $1.5 million, which were trebled as required by section 4 of the Clayton Act. Bard argues that the findings are not supported by substantial evidence, and that judgment as a matter of law should have been granted.

A. The Walker Process Claim

[40] Fraud in obtaining a United States patent is a classical ground of invalidity or unenforceability of the patent. In *Walker Process,* 382 U.S. 172, 86 S.Ct. 347, 147 USPQ 404 the Court established that antitrust liability under section 2 of the Sherman Act may arise when a patent has been procured by knowing and willful fraud, the patentee has market power in the relevant market, and has used its fraudulently obtained patent to restrain competition. Restraint on competition based on power in the relevant market must be established on the criteria

of section 2, when the patent has been fraudulently obtained. *See Nobelpharma,* 141 F.3d at 1068, 46 USPQ2d at 1104; [FN7] *Spectrum Sports, Inc. v. McQuillan,* 506 U.S. 447, 455-56, 113 S.Ct. 884, 122 L.Ed.2d 247 (1993) (explaining *Walker Process* as requiring appraisal of the exclusionary power of the fraudulently obtained patent in terms of the relevant market for the product involved).

> FN7. In *Nobelpharma* the Federal Circuit held in banc that Federal Circuit law would thenceforth apply to determination of whether fraudulent conduct occurred in obtaining a patent, whereas determination of the other elements of the section 2 violation, *viz.* market power in the relevant market and illegal restraints on competition, since not unique to the patent right would continue to be governed by regional circuit law. 141 F.3d at 1067-68, 46 USPQ2d at 1104.

The jury found by special verdicts that the '056 and '308 patents were obtained by fraud in their prosecution before the PTO, as discussed in Part V, *ante.* The jury also ***1368** found that "there is a relevant product market" for the biopsy guns and needles, together and separately, that Bard had monopoly power in each market and had "engaged in restrictive or exclusionary conduct with the conscious object of acquiring monopoly power in that market."

[41] It is not presumed that the patent-based right to exclude necessarily establishes market power in antitrust terms. *See Abbott Labs. v. Brennan,* 952 F.2d 1346, 1354, 21 USPQ2d 1192, 1199 (Fed.Cir.1991) (possession of patent, and market advantages thus gained, do not establish antitrust market power). The virtually unlimited variety and scope of patented inventions and market situations militate against per se rules in these complex areas. Unless the patent had been obtained by fraud such that the market position had been gained illegally, the patent right to exclude does not constitute monopoly power prohibited by the Sherman Act. *Walker Process,* 382 U.S. at 177-78, 86 S.Ct. 347, 147 USPQ at 407. As the Second Circuit stated in *SCM Corp. v. Xerox Corp.,* "No court has ever held that the antitrust laws require a patent holder to forfeit the exclusionary power inherent in his patent the instant his patent monopoly affords him monopoly power over a relevant product market." 645 F.2d 1195, 1204, 209 USPQ 889, 899 (2d Cir.1981).

[42] Thus it was necessary for M3 Systems to establish market power as well as fraudulent procurement of the patent and that Bard's related commercial activity was coupled with violations of section 2. In addition, applying the law of the Seventh Circuit to the elements of section 2, M3 was required to establish that Bard had a specific intent to monopolize, engaged in anti- competitive conduct, and had a dangerous probability of success. *See Great Escape, Inc. v. Union City Body Co.,* 791 F.2d 532, 540 (7th Cir.1986). These issues were argued at trial, and by special verdicts the jury found culpability on the part of Bard. However, in view of the incorrect verdicts on the question of fraud in procurement of the '056 and '308 patents, as discussed in Part V, as a matter of law the judgment of antitrust violation can not be sustained on *Walker Process* grounds.

B. "Sham" Litigation

[43] Conduct prohibited under antitrust law includes bringing suit to enforce a patent with knowledge that the patent is invalid or not infringed, and the litigation is conducted for anti-competitive purposes. In such events the antitrust immunity of *Noerr-Pennington* and *California Motor Transp. Co. v. Trucking Unltd.,* 404 U.S. 508, 92 S.Ct. 609, 30 L.Ed.2d 642 (1972) does not apply to those who seek redress through judicial process.

The Supreme Court in *Professional Real Estate Investors, Inc. v. Columbia Pictures Indus., Inc.* (*PRE*) established the two-part criteria of "sham" litigation: (1) the lawsuit must be objectively meritless such that "no reasonable litigant could expect success on the merits" and (2) it must be found that "the baseless lawsuit conceals 'an attempt to interfere directly with the business relationships of a competitor.' " 508 U.S. 49, 60, 113 S.Ct. 1920, 123 L.Ed.2d 611, 26 USPQ2d 1641, 1646 (1993) (emphasis in original) (quoting *Eastern R.R. Presidents Conf. v. Noerr Motor Freight, Inc.,* 365 U.S. 127, 144, 81 S.Ct. 523, 5 L.Ed.2d 464 (1961)). The Court declined to decide "whether and, if so,

to what extent *Noerr* permits the imposition of antitrust liability for a litigant's fraud or other misrepresentations." *PRE,* 508 U.S. at 62 & n. 6, 113 S.Ct. 1920, 26 USPQ2d at 1646-47 & n. 6. Fraud in the procurement of a patent is governed by *Walker Process* and, as in *PRE,* the complainant "must still prove a substantive antitrust violation." *PRE,* 508 U.S. at 61, 113 S.Ct. 1920, 26 USPQ2d at 1646.

[44] Thus although sham litigation as a tactic to destroy competition can lead to antitrust violation, *see U.S. Philips Corp. v. Sears Roebuck & Co.,* 55 F.3d 592, 597, 34 USPQ2d 1699, 1703 (Fed.Cir.1995); *cf. Handgards, Inc. v. Ethicon, Inc.,* 743 F.2d 1282, 1288, 223 USPQ 214, 222-23 (9th Cir.1984) (addressing *Noerr-Pennington* issue ***1369** and explaining that to invoke "sham" exception the claimant must show "some abuse of process," and requiring clear and convincing evidence of bad faith), sham litigation requires more than a failed legal theory. *PRE,* 508 U.S. at 60-61 & n. 5, 113 S.Ct. 1920, 26 USPQ2d at 1646 & n. 5; *see Carroll Touch, Inc. v. Electro Mechanical Sys., Inc.,* 15 F.3d 1573, 1582, 27 USPQ2d 1836, 1844 (Fed.Cir.1993).

[45][46] Neither the bringing of an unsuccessful suit to enforce patent rights, nor the effort to enforce a patent that falls to invalidity, subjects the suitor to antitrust liability. *Cf. Concrete Unltd. Inc. v. Cementcraft, Inc.,* 776 F.2d 1537, 1539, 227 USPQ 784, 785 (Fed.Cir.1985) (no liability for unfair competition based on suit to enforce an invalid patent). Since a principal purpose of the patent system is to provide innovators with a property right upon which investment and other commercial commitments can be made, absent the *PRE* criteria the patentee must have the right of enforcement of a duly granted patent, unencumbered by punitive consequences should the patent's validity or infringement not survive litigation. *See id.* The law recognizes a presumption that the assertion of a duly granted patent is made in good faith, *see Virtue v. Creamery Package Mfg. Co.,* 227 U.S. 8, 37-38, 33 S.Ct. 202, 57 L.Ed. 393 (1913); this presumption is overcome only by affirmative evidence of bad faith. *See PRE, supra.*

[47] M3 Systems states that Bard knew its patents were not infringed when it brought suit, citing the testimony of a Bard engineer that he did not think the original M3 needle infringed the '056 patent and that other Bard employees had told him that M3 changed its needle design to one that did not infringe. The engineer also testified that he did not know whether those who told him M3's needles did not infringe had ever read the '056 patent, or whether they were familiar with the concept of infringement under the doctrine of equivalents. This was the totality of the evidence of sham litigation concerning the '056 patent; there was no evidence at all with respect to the '308 patent. [FN8] This does not constitute substantial evidence that this litigation was objectively meritless and brought in bad faith. The judgment of antitrust violation can not be upheld on sham litigation grounds.

FN8. M3 in its brief states that: "The Jury specifically found that BARD had 'actual knowledge' that M3 did not infringe its patents or that the patents were invalid. [A10096; 11-3 ¶¶ 6,11]." There is no specific finding in the verdict form of "actual knowledge." The cites to ¶¶ 6 & 11 are to the jury's finding of patent misuse, and the jury instructions at A10096 concern the duty of candor to the PTO. The source of the quoted "actual knowledge" is not given. Such misdirections are not helpful to the appellate tribunal; see also note 6, *supra.*

C. Attempt to Monopolize [FN9]

FN9. The court has affirmed the district court's judgment of antitrust violation on this ground; see the separate opinion of Judge Bryson, joined by Chief Judge Mayer. This section contains the dissenting opinion of Judge Newman.

M3 Systems proposed that Bard had modified its biopsy gun and needles for the purpose of preventing use of Tru-Cut needles and then to exclude M3's copies so that they did not fit the gun without an adapter. M3 contends that Bard's motives were anti-competitive, pointing to Bard documents showing internal discussions of

competitive products and concern for patent scope and market share. Bard replies that the Tru-Cut was not suitable for its new gun because it could not achieve reverse motion, and points out that M3's witness acknowledged that M3 could effectively compete, as were several other producers of biopsy guns and needles.

Bard was under no duty to facilitate M3's competition by refraining from changing its products. The jury instructions did not distinguish patent- supported products and markets based thereon from actions described to the jury as being in restraint of trade. For example, the jury instruction on intent to monopolize was as follows:

> M3 Systems also alleges that it was injured by Bard's unlawful attempt to monopolize. ***1370** An attempt to monopolize may be proven even if Bard lacks monopoly power, but because of its alleged exclusionary conduct, there exists a dangerous probability that Bard will obtain monopoly power in any market. In order to win on its claims of attempted monopolization, M3 Systems must prove each of the following elements by a preponderance of the evidence:
>
> First, that Bard had a specific intent to achieve monopoly power in a relevant market; second, that Bard engaged in exclusionary or restrictive conduct in furtherance of its specific intent; third, that there was a dangerous probability that Bard would obtain monopoly power in the relevant market; and, fourth, that M3 Systems was injured in its business or property by Bard's conduct.

In explaining further, the district court referred to "exclusionary or restrictive conduct" and "unreasonable acts and practices," again without reference to patented products and their status in the law. Although the court instructed that "conduct that involves the introduction of superior products" is not exclusionary or restrictive, the court also stated that "where conduct is ambiguous, direct evidence of a specific intent to monopolize may lead you to conclude that the conduct was intended to be and was in fact exclusionary or restrictive." No mention was made of the patentee's statutory right to exclude, and there was no instruction to consider that right.

These broadly stated descriptions of exclusionary or restrictive conduct, unlimited by the conditions set in *Walker Process* or *PRE* and taking no cognizance of the legal rights of the patent grant, do not rise to the level of violation of antitrust law. Thus I must, respectfully, dissent from the court's ruling that Bard incurred liability under the Sherman and Clayton Acts by its actions in modifying and improving its patented products, thereby requiring M3 to provide an adapter with its replacement needles for the Bard gun.

The panel majority on this issue holds that the jury verdict of monopoly power must be sustained, although the power held by Bard in this market is based on the patent right. Bard or its predecessor Radiplast changed from the Tru-Cut to a newly designed needle that was capable of reverse movement, thus facilitating removal, inspection, and reinsertion of the inner needle while the cannula remained in place. This needle assembly is the subject of the '056 patent. The record states that M3 was obliged to use an adapter to fit its existing needles to Bard's gun; that is the antitrust ill of which M3 complained. This does not, as a matter of law, present a jury question of violation of the Sherman Act. *See California Computer Prods., Inc. v. International Bus. Mach. Corp.*, 613 F.2d 727, 744 (9th Cir.1979) (when the innovation is an improvement, that it affects competition is not an antitrust violation, and no jury question arises).

Both the needle assembly alone and the integrated biopsy gun/needle device were patented. They were subject to Bard's patent-based rights to exclude others from making, using, or selling them. It was not Bard's changes to its biopsy gun or needles that affected M3's sale of replacement needles; it was the patents on these products. To hold that Bard could violate the Sherman Act by changing these products, if M3's business was adversely affected, is a novel and pernicious theory of antitrust law that is contrary to the principles of competition, and fraught with litigation-generating mischief.

Despite this court's recent affirmation in *Virginia Panel Corp. v. MAC Panel Co.*, 133 F.3d 860, 873-74, 45 USPQ2d 1225, 1236 (Fed.Cir.1997) that "a patentee may lawfully police a market that is effectively defined by its patent," this court now holds that changing and improving one's proprietary product that has created its own market niche, if to a competitor's potential disadvantage, is actionable under the Sherman Act. The competition-favoring rule is that an innovator has no duty to help its

competitors: "It is the possibility of success in the marketplace, attributable to superior performance, that provides the incentives on which the proper functioning of our competitive economy rests." *1371*Berkey Photo, Inc. v. Eastman Kodak Co.*, 603 F.2d 263, 281 (2d Cir.1979). In *California Computer* the court observed that "[IBM] was under no duty to help CalComp or other peripheral equipment manufacturers survive or expand." 613 F.2d at 744. This court has today created a new, vague, and unworkable cause of action, of clear public detriment, with no balancing public benefit.

The concept that antitrust law should bar an innovator from making changes or improvements to its products, when others may be affected thereby, is not brand new. However, cases where this issue has been litigated have been of a different order of competitive impact than here asserted; and I have found no case in which such a charge has been sustained. In *In re IBM Peripheral EDP Devices Antitrust Litig.*, 481 F.Supp. 965, 1002-05 (N.D.Cal.1979), *aff'd sub nom. Transamerica Computer Co. v. International Bus. Mach. Corp.*, 698 F.2d 1377 (9th Cir.1983), cited by the panel majority, the district court declined to assess liability for IBM's interface changes that prevented use of competitors' peripheral devices when "the contested changes were improvements in the products, were not unreasonably restrictive of competition, and hence did not violate the Sherman Act." *Id.* at 1382.

A basic premise of patent law, and antitrust law in general, is that the commercial advantage gained by new technology, and its statutory protection by patent, do not convert the possessor thereof into a prohibited monopolist. In *United States v. Grinnell Corp.*, 384 U.S. 563, 570-71, 86 S.Ct. 1698, 16 L.Ed.2d 778 (1966) the Court distinguished the willful acquisition or maintenance of monopoly power from "growth or development as a consequence of a superior product, business acumen, or historic accident." *See also Jefferson Parish Hospital District No. 2 v. Hyde*, 466 U.S. 2, 37 n. 7, 104 S.Ct. 1551, 80 L.Ed.2d 2 (1984) ("A common misconception has been that a patent or copyright, a high market share, or a unique product that competitors are not able to offer suffices to demonstrate market power.") (O'Connor, J., concurring); *A.I. Root Co. v. Computer/ Dynamics, Inc.*, 806 F.2d 673, 676 (6th Cir.1986) (rejecting "any absolute presumption of market power for copyright or patented product").

When the market for new technology is protected by patent, to violate the antitrust law there must be an improper use of the patent right, "coupled with violations of § 2." *Walker Process*, 382 U.S. at 177-78, 86 S.Ct. 347, 147 USPQ at 407. In *Walker Process* the Court again explained that a patent does not of itself establish a presumption of market power in the antitrust sense. *Id.* at 178, 86 S.Ct. 347, 147 USPQ at 406. In *American Hoist & Derrick Co. v. Sowa & Sons, Inc.*, 725 F.2d 1350, 1367, 220 USPQ 763, 776 (Fed.Cir.1984), this court wrote that "patent rights are not legal monopolies in the antitrust sense of the word." Yet in the case now before us the jury was asked to determine simply whether Bard had monopoly power in a relevant market, without reference to whether the "exclusionary conduct" of which M3 complained was the conduct of the patent law.

M3 did not allege the elements of an antitrust violation when patents are involved. *See, e.g., Double D Spotting Service, Inc. v. Supervalu, Inc.*, 136 F.3d 554, 558 (8th Cir.1998) (" 'The essential elements of a private antitrust claim must be alleged in more than vague and conclusory terms to prevent dismissal of the complaint on a defendant's [Rule] 12(b)(6) motion.' ") (quoting *Crane & Shovel Sales Corp. v. Bucyrus-Erie Co.*, 854 F.2d 802, 805 (6th Cir.1988)); *Okusami v. Psychiatric Institute of Washington, Inc.*, 959 F.2d 1062, 1065 (D.C.Cir.1992) ("[T]he plaintiff's antitrust claims, lacking the essential element of an agreement, were properly dismissed for failure to state a claim upon which relief could be granted.") Dismissal for failure to state a claim was the proper response to M3's undifferentiated assertion of anticompetitive practices.

I need not elaborate on the litigation opportunity affecting innovation-based industry, that is here so casually enabled. "Where competitors' products must interface with the monopolist's product the monopolist's introduction*1372 of a new product that makes that interconnection more difficult or expensive might violate Section 2, although *no court has specifically so held.*" 1 American Bar Assoc., *Antitrust Law Developments* 286 (4th ed.1997) (emphasis added). As a sister circuit recently stated, "Antitrust scholars have long

recognized the undesirability of having courts oversee product design, and any dampening of technological innovation would be at cross-purposes with antitrust law." *United States v. Microsoft Corp.*, 147 F.3d 935, 948 (D.C.Cir.1998).

The proceedings at trial, and the jury instructions, made no mention of the patent rights here present. It is without precedent to find antitrust liability premised on a theory that development of new products is illegally anticompetitive when the new product requires competing suppliers to adjust their product accordingly. Commentators who have considered the question of "whether product innovation can ever be unlawfully 'predatory' " have concluded that "no administrable rule could be fashioned that would not exact an unreasonably heavy toll." 3 Phillip E. Areeda & Herbert Hovenkamp, *Antitrust Law* § 705b (rev. ed.1996). If this court deems it appropriate to add this burden to patent-based innovation, there should at least be some overriding public benefit. However, antitrust jurisprudence has well understood that the enforcement of the antitrust laws is self-defeating if it chills or stifles innovation. *See IBM Peripheral, supra.*

Neither the jury instructions nor the special interrogatories framed a charge of predatory conduct that comports with established criteria of antitrust liability. It appears that this charge at trial was cobbled together from left-over allegations of bad acts by bad actors. Indeed, M3's antitrust counterclaims mention only *Walker Process* fraud and sham litigation, which all members of this panel agree were not established. I can not discern, in the law or in the record of this case, either legal or factual support for this new form of antitrust liability.

VII
MISUSE; OTHER ISSUES

[48] The defense of patent misuse arises from the equitable doctrine of unclean hands, and relates generally to the use of patent rights to obtain or to coerce an unfair commercial advantage. Patent misuse relates primarily to a patentee's actions that affect competition in unpatented goods or that otherwise extend the economic effect beyond the scope of the patent grant. *See Mallinckrodt, Inc. v. Medipart, Inc.*, 976 F.2d 700, 703-04, 24 USPQ2d 1173, 1176 (Fed.Cir.1992) ("The concept of patent misuse arose to restrain practices that did not in themselves violate any law, but that draw anticompetitive strength from the patent right, and thus were deemed to be contrary to public policy.")

[49][50] Patent misuse is viewed as a broader wrong than antitrust violation because of the economic power that may be derived from the patentee's right to exclude. Thus misuse may arise when the conditions of antitrust violation are not met. *See Zenith Radio Corp. v. Hazeltine Research, Inc.*, 395 U.S. 100, 140-41, 89 S.Ct. 1562, 23 L.Ed.2d 129, 161 USPQ 577, 597 (1969). The key inquiry is whether, by imposing conditions that derive their force from the patent, the patentee has impermissibly broadened the scope of the patent grant with anticompetitive effect. *See Virginia Panel Corp. v. MAC Panel Co.*, 133 F.3d 860, 868, 45 USPQ2d 1225, 1231-32 (Fed.Cir.1997); *B. Braun Medical, Inc. v. Abbott Labs.*, 124 F.3d 1419, 1426, 43 USPQ2d 1896, 1902 (Fed.Cir.1997) ; *Mallinckrodt*, 976 F.2d at 704, 24 USPQ2d at 1176.

[51][52] The jury returned special verdicts that Bard had misused both the '056 and '308 patents. Patent misuse arises in equity, and a holding of misuse renders the patent unenforceable until the misuse is purged; it does not, of itself, invalidate the patent. *See Morton Salt Co. v. G.S. Suppiger Co.*, 314 U.S. 488, 62 S.Ct. 402, 86 L.Ed. 363 (1942); *Senza-Gel Corp. v. Seiffhart*, 803 F.2d 661, 668 n. 10, 231 USPQ 363, 368 n. 10 (Fed.Cir.1986) . When a jury has determined that patent misuse occurred we review the underlying findings of fact for support by substantial evidence, presuming that the jury ***1373** resolved any factual disputes in favor of the verdict winner. We then determine whether, on the found or presumed facts, the conclusion on the issue of misuse is correct. *See Virginia Panel*, 133 F.3d at 868, 45 USPQ2d at 1231-32.

[53] The jury instruction on patent misuse was focussed primarily on the charge that Bard was attempting to enforce the patents against goods known not to be infringing, the court explaining that antitrust violation is not necessary to find misuse if patents have been used "wrongfully" to exclude competitors:

A patent is unenforceable for misuse if the patent

owner attempts to exclude products from the marketplace which do not infringe the claims of the patent and the patent owner has actual knowledge that those products do not infringe any claim of the patents. The patent is also unenforceable for misuse when a patent owner attempts to use the patent to exclude competitors from their marketplace knowing that the patent was invalid or unenforceable.

A patent will not be rendered unenforceable for misuse if the patent owner has enforced the patent in the good faith belief that the accused products infringed the patent's claims.

You may consider all aspects of the conduct of the patent owner in deciding whether a patent has been misused. In order to find misuse, you may not determine that--you need not determine that an antitrust violation has been proved. Even if an antitrust violation has not been proven, you may still find that the patents have been misused if you conclude that the patents have been used wrongfully.

This instruction calls to mind the view expressed in *USM Corp. v. SPS Techs., Inc.,* 694 F.2d 505, 510, 216 USPQ 959, 963 (7th Cir.1982) that the misuse doctrine is "too vague a formulation to be useful." Although the defense of patent misuse indeed evolved to protect against "wrongful" use of patents, the catalog of practices labelled "patent misuse" does not include a general notion of "wrongful" use. *See id.* ("in application, the doctrine has largely been confined to a handful of specific practices").

[54] M3 Systems did not propose any of the classic grounds of patent misuse, such as tying or enforced package licensing or price restraints or extended royalty terms, *see* Chisum, *supra,* § 19.04[3], but generally urged the view that Bard's actions, even if not illegal, were an improper use of patents. Although the law should not condone wrongful commercial activity, the body of misuse law and precedent need not be enlarged into an open-ended pitfall for patent-supported commerce.

There was no evidence that Bard's competitive activities were either per se patent misuse or that they were not "reasonably within the patent grant." *See Mallinckrodt,* 976 F.2d at 708, 24 USPQ2d at 1180. The conduct to which the jury instruction on misuse generally refers, that is, "wrongful" enforcement of patents, is activity protected under *Noerr* and *California Motor,* and is not subject to collateral attack as a new ground of "misuse." M3 Systems adduced no evidence of patent misuse other than was presented for its antitrust claims. It is not patent misuse to bring suit to enforce patent rights not fraudulently obtained, nor is otherwise legal competition such behavior as to warrant creation of a new class of prohibited commercial conduct when patents are involved.

The verdicts of patent misuse are not supported by evidence or correct legal theory. The judgment on these verdicts is reversed.

Other Arguments/Issues

We have not discussed every minor argument and issue raised in this appeal. All have been considered, and we have discussed those of relevance. With respect to Bard's frequent references to jury prejudice resulting from disclosure to the jury of Bard's recent civil penalties and criminal convictions for several violations of Food and Drug Administration laws and regulations, we take ***1374** note that no motion for a new trial was made on this ground, and the issue is not before us for review.

Costs

No costs.

AFFIRMED IN PART, REVERSED IN PART, VACATED IN PART, AND REMANDED

MAYER, *Chief Judge,* concurring-in-part and dissenting-in-part.

I join the court's opinion as it pertains to the validity and infringement of the '308 patent, and agree that the jury's verdict on fraud cannot stand. I join Judge Bryson's opinion sustaining the jury verdict on M3's antitrust counterclaim and remanding. My views on the validity of the '056 patent follow.

By special interrogatory, a jury found each of the disputed claims of the '056 patent invalid because the claimed invention was on sale in the United

States more than one year before July 30, 1986, the filing date of the '056 patent's parent application. M3 Systems presented the jury with two reasons why the invention may be invalid for violation of the on sale bar: a transfer from Radiplast to Pharmaseal of 250 needles in June 1985 and an offer from Radiplast to Dr. Ronald Phelps in November 1984. We may affirm the invalidity verdict on either basis. *See, e.g., Ethicon Endo-Surgery, Inc. v. United States Surgical Corp.*, 93 F.3d 1572, 1582, 40 USPQ2d 1019, 1027 (Fed.Cir.1996). Because I believe that the jury had substantial evidence that Radiplast placed the invention claimed in the '056 patent on sale in November 1984, I would sustain the jury's verdict of invalidity.

Discussion

[55] An inventor who places his invention "in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States" loses his right to patent the invention. 35 U.S.C. § 102(b) (1994). A determination that a product was placed on sale under section 102(b) is a question of law, based on underlying facts. *See, e.g., KeyStone Retaining Wall Sys. Inc. v. Westrock, Inc.*, 997 F.2d 1444, 1451, 27 USPQ2d 1297, 1303 (Fed.Cir.1993). While we review the trial court's ultimate determination of a section 102(b) bar *de novo, see, e.g., Ferag AG v. Quipp, Inc.*, 45 F.3d 1562, 1566, 33 USPQ2d 1512, 1515 (Fed.Cir.1995); *U.S. Environmental Products Inc. v. Westall*, 911 F.2d 713, 715, 15 USPQ2d 1898, 1900 (Fed.Cir.1990), in considering its denial of Bard's motion for judgment as a matter of law, we review the jury's verdict, as did the trial court, for substantial evidence. *See, e.g., Shatterproof Glass Corp. v. Libbey-Owens Ford Co.*, 758 F.2d 613, 619, 225 USPQ 634, 636 (Fed.Cir.1985); *Railroad Dynamics, Inc. v. A. Stucki Co.*, 727 F.2d 1506, 1513, 220 USPQ 929, 936 (Fed.Cir.1984). " 'Substantial' evidence is such relevant evidence from the record taken as a whole as might be accepted by a reasonable mind as adequate to support the finding under review." *Perkin-Elmer Corp. v. Computervision Corp.*, 732 F.2d 888, 893, 221 USPQ 669, 673 (Fed.Cir.1984).

We are guided in our review of the legal conclusion by principles underlying the on sale bar: broad and prompt disclosure of inventions to the public; providing opportunity to experiment, improve, and determine the market value of inventions; discouraging inventors from withdrawing inventions that the public has already come to believe are freely available; and discouraging commercialization that expands the patent system's grant of the right to exclude others. *See, e.g. Envirotech Corp. v. Westech Eng'g, Inc.*, 904 F.2d 1571, 1574, 15 USPQ2d 1230, 1232 (Fed.Cir.1990); *King Instrument Corp. v. Otari Corp.*, 767 F.2d 853, 860, 226 USPQ 402, 407 (Fed.Cir.1985); *General Electric Co. v. United States*, 228 Ct.Cl. 192, 654 F.2d 55, 61, 211 USPQ 867, 873 (Ct.Cl.1981). Because the ultimate determination of whether an on sale bar exists rests on the totality of the circumstances, that is, on consideration of the unique facts of each transaction or event, no one factor necessarily controls. *See, e.g., *1375 Ferag*, 45 F.3d at 1566, 33 USPQ2d at 1515. Nevertheless, we have held that "[f]oremost among these is the policy of preventing inventors from exploiting the commercial value of their inventions while deferring the beginning of the statutory term. To this end, the inventor is strictly held to the requirement that he file his patent application within one year of any attempt to commercialize the invention." *Ferag*, 45 F.3d at 1566, 33 USPQ2d at 1515 (internal citation omitted). The inventor is entitled to the full benefit of the patent regime; the public is entitled to full, timely disclosure of the protected invention.

We are likewise guided in our review by the principle that we must presume facts necessary to support the jury verdict. *See, e.g., Perkin-Elmer*, 732 F.2d at 893, 221 USPQ at 673; *Railroad Dynamics*, 727 F.2d at 1516, 220 USPQ at 939. Given the on sale bar verdict, we assume the jury found that Radiplast made a definite offer to sell certain subject matter and that this subject matter "fully anticipated the claimed invention or would have rendered the claimed invention obvious by its addition to the prior art." *UMC Elec. Co. v. United States*, 816 F.2d 647, 656, 2 USPQ2d 1465, 1472 (Fed.Cir.1987); *see also LaBounty Mfg., Inc. v. United States Int'l Trade Comm'n*, 958 F.2d 1066, 1071, 22 USPQ2d 1025, 1028 (Fed.Cir.1992). Thus, on review we must affirm the verdict of invalidity of the '056 patent if these factual findings are supported by substantial evidence, and within the context of the various policies underlying the on

sale bar, the totality of circumstances supports the ultimate legal conclusion.

I. Offer for Sale

On September 25, 1984, Ronald Phelps, an Alabama medical doctor, sent Radiplast AB a letter that stated: "I am interested in learning more about the new device for percutaneous needle biopsy pictured on the enclosed brochure. I would appreciate it if you would send me all the information you have pertaining to the instrument. Also, please include a price list. Thank you." Phelps included with this letter a brochure entitled "Radi-biospy device, a new device for percutaneous needle biopsy." This brochure described previously existing technology and then stated:

> A new device has been constructed in order to improve this biopsy method. With the aid of this instrument the biopsy procedure can be carried out with one hand, and as the movements of the obturator and cannula are automatized, better tissue specimens are obtained. All biopsies can be performed by one examiner under dynamic ultrasonic control, or under fl[uo]roscopy.
>
> The new device consists of a spring-trigger system for firing the two different parts of the needle--the cannula and the obturator.
>
> It is constructed of alloyed brass and, like the pressure rod, can be autoclaved.
>
> See special instructions before using.
>
> Manufactured by ... RADIPLAST AB....

By way of its managing director, Thomas Engström, Radiplast, replied as follows to Phelps' letter on November 12, 1984:

> We thank you for your letter of [S]ept. 25[,] 1984 and for your interest in our BIOPSY DEVICE. I am truly sorry for my late reply. Our generation No. 2 of the device will we, together with our new biopsy needles suitable for the device, start marketing in USA beginning of--85, at the moment we do not know through which company. *If you do not want to wait* until we have our representation in USA arranged, *you can always [sic] order the device* directly from us.
>
> Our price for the device *is* SEK 9.900,- and for the needles SEK 75,/ea.
>
> The device *is* reusable and can be autoclaved. Very little service has to be done on the device due to reliable design. The needles *are* dispo[s]able and are designed to suit the device.
>
> I am enclosing leaflet and article.

***1376** I am looking forward to hearing from you. (Emphasis added).

The Radiplast brochure that Phelps sent to Radiplast describes a device that can be operated with one hand, by one operator, leaving the physician's other hand free to operate the ultrasound or fluoroscopy equipment. The brochure describes both parts of the needle as automatized by way of a spring-trigger system. It describes the construction materials used to manufacture the device as well as a procedure by which it can be cleaned. In short, the brochure can be understood to describe either a first generation prior art device or the second generation device described in the '056 patent.

Despite this ambiguity, Engström's reply to Phelps' letter in November 1984 is far more telling both in what it said and when it said it. His letter explicitly refers to the second generation device and "new biopsy needles suitable for the device." Since the second generation device requires a needle that moves both forward and rearward, unlike the prior art TruCut needle, Engström's letter is a clear offer for sale of the second generation device and new biopsy needles. With the exception of a reference to marketing efforts being made in the United States and the possibility of sales through a United States distributor thereafter, this letter was written entirely in the present tense.

The letter was also written after a series of correspondence between Radiplast and Hart Enterprises, a United States medical device manufacturer, addressing tooling and manufacturing costs for these new biopsy needles. On September 4, 1984, Engström had written: "Enclosed please find ... a drawing on the biopsy needle. The stainless steel parts are not the final ones, there could be changes in length, diam. and the design of the point." On September 28, 1984, Hart Enterprises responded: "[E]nclosed are two drawings, one of the Stylet Hub and one of the Cannula Hub for your Radiplast Biopsy Needle. If you approve these concepts we will proceed to make a prototype, and then production of the molds." Radiplast replied on October 18, 1984: "Biopsy needles: Enclosed please find our order for tooling and engineering. We approve your design of the plastic parts. The dimension from the top surface to center line of both cannula and stylet should be 4.2 mm. Regarding the needles we will

probably start with 2.000--3.000 units bulk packed." Less than one month later, Engström sent Phelps the November 12, 1984, letter.

These facts alone are sufficient support for the jury's verdict that there was a definite offer for sale of something more than the TruCut prior art or first generation needles. However, to apply the on sale bar, the jury also had to decide whether this offer for sale of new biopsy needles was an offer of the invention claimed in the '056 patent. We review this second presumed factual finding for substantial evidence, and like the district court on its denial of Bard's motion for judgment as a matter of law, we also consider whether there may be policy considerations against imposing the on sale bar.

II. Offer of the Claimed Invention

Bard claims that Radiplast's November 1984 offer to sell second generation devices and new biopsy needles cannot trigger the bar because at that time no operable device had been made, FDA approval had not been obtained, Radiplast had not conducted clinical testing, it had not found a United States distributor, and it had not developed a final needle design. Bard misapprehends the legal significance of each of these. Clinical testing is not required before a sale can bar patent rights. Nor can subsequent clinical testing excuse a prior sale, if what was offered for sale was the claimed invention. Clinical testing is merely one possible policy reason why a particular sale might be excused from the bar. Since Radiplast did not contemplate sales to Engström for testing purposes, the possibility of subsequent clinical testing is of no moment. Likewise, FDA approval is not required before a sale can bar patent rights. Even an illegal sale of the claimed invention before the critical date can bar patent rights. Nor is a domestic distributor ***1377** relevant to the on sale bar inquiry; a sale by a foreign distributor, from a foreign country to the United States can bar patent rights. *See, e.g., In re Caveney,* 761 F.2d 671, 676-77, 226 USPQ 1, 4 (Fed.Cir.1985).

The first of Bard's two remaining arguments--that no operable device had been made--is a feint because manufacture of an operable device is not a prerequisite for application of the on sale bar. *See, e.g., Barmag Barmer Maschinenfabrik AG v. Murata Machinery, Ltd.,* 731 F.2d 831, 837, 221 USPQ 561, 565 (Fed.Cir.1984). While operability may or may not be relevant, *see, e.g., UMC,* 816 F.2d at 656, 2 USPQ2d at 1472 (reduction to practice is not a requirement for application of the on sale bar), manufacture of an operable device alone is not, *see, e.g., Continental Plastic Containers v. Owens Brockway Plastic Products, Inc.,* 141 F.3d 1073, 1078-79, 46 U.S.P.Q.2d 1277, 1281 (Fed.Cir.1998) (declining to extend exception from public use bar under section 102(b) in design patent case). Operability is relevant only to the extent it demonstrates that a claimed element of the invention had not yet been invented, or the inventors did not know they had a workable invention and thus had nothing to offer for sale. *See, e.g., Petrolite Corp. v. Baker Hughes, Inc.,* 96 F.3d 1423, 1427, 40 USPQ2d 1201, 1204 (Fed.Cir.1996) ("[T]he thrust of the on-sale inquiry is whether the inventor thought he had a product which could be and was offered to customers, not whether he could prevail under the technicalities of reduction to practice ....") (quoting *Paragon Podiatry Lab., Inc. v. KLM Lab., Inc.,* 984 F.2d 1182, 1187 n. 5, 25 USPQ2d 1561, 1570 n. 5 (Fed.Cir.1993)). Bard has not asserted the second circumstance, and as explained below, the alterations made after the offer for sale to Phelps did not address inventive aspects of the '056 patent's new biopsy needle.

As support for its remaining contention--that it had not developed the final design of the biopsy needle--Bard points to Engström's testimony, as managing director of Radiplast, and correspondence between Radiplast, American Pharmaseal, (one of Radiplast's potential distributors in the United States), and Alan Taylor (president of Hart Enterprises). Each of these letters was sent after the November 1984 offer for sale to Phelps, and each evidences continued testing of and proposed modifications to the second generation device and the new biopsy needles. [FN*]

FN* Reliance on Engström's trial testimony is inherently less reliable than contemporaneous documentary evidence. *Cf. TP Lab., Inc. v. Professional Positioners, Inc.,* 724 F.2d 965, 972, 220 USPQ 577, 583 (Fed.Cir.1984) (inventor's expressions of "subjective intent ... particularly after institution of litigation, is

generally of minimal value").

Engström testified that American Pharmaseal's research and development laboratories conducted in-house testing. A technical report produced after this testing says that "testing [was] to insure functionality of the spring loaded activatior, the BioptytM device, and the needle before releasing them to the field trial." As a result of its testing, American Pharmaseal recommended: "increas[ing] the strength of the stylet handle design and add [ing] the buffing operation to cannula grinding process." Engström testified that this advice was "to, how do you say, make some changes on the plastic parts and also the-- what do you call that-- well, the, for some plastic parts broke actually, so we put some, a stopper in the second generation device to prevent, if that happened, to prevent the stylet to go further on." Engström testified that on American Pharmaseal's advice, Radiplast added a "stop" to the second generation device, after the offer to Phelps.

Engström also testified that Radiplast conducted field trials in December 1985, from which it learned that "there was a potential risk for this one snapping back and hurt the doctor's hand," and "many patients thought the noise of the instrument was very disturbing." As a result, Radiplast added "an automatic retraction, a spring, actually, which took this handle back," and "some damping things, you know, to reduce the noise of the instrument." After these field trials, Engström sent a letter to Hart Enterprises on ***1378** January 15, 1985, which stated: "The needle should be changed according to our phone discussion, which means that the wings of the cannula hub should have the same length. Both should be as long as the shortest wing." A letter from Hart Enterprises to Engström on January 25, 1985, enclosed three drawings that show "[t]he cannula and stylet hub dimensions are identical to the drawings and prototype you had previously received, with the exception that the cannula hub wings are now [sym]metrical."

This evidence suggests that Radiplast modified the second generation device by altering the strength of the stylet handle design, adding a buffing operation to the cannula grinding process, a stopper, automatic retraction via a spring, damping to reduce noise, and equal length symmetrical cannula hub wings as long as the shortest wing. However, Bard cannot avoid the on sale bar merely by showing improvements to the invention after its commercialization. *See, e.g., Seal-Flex, Inc. v. Athletic Track and Court Constr.*, 98 F.3d 1318, 1324, 40 USPQ2d 1450, 1454-55 (Fed.Cir.1996). These changes must be something more than obvious mechanical adjustments; they have to be inventive redesigns that are claimed by the '056 patent. While some of Radiplast's changes resulted in different possible embodiments of, or additions to, the new biopsy needle that is claimed by the '056 patent, none of the changes are claimed in the text of the '056 patent. Moreover, contrary to Bard's contentions, its evidence suggests at the very least that Radiplast had "reason to expect" in November 1984, that its needle "would work for its intended purpose upon completion," *Micro Chemical, Inc. v. Great Plains Chemical Co., Inc.*, 103 F.3d 1538, 1545, 41 USPQ2d 1238, 1244, and that Radiplast had more than a mere conception from which it was working towards development, *see UMC*, 816 F.2d at 657, 2 USPQ2d at 1472.

Because Bard's evidence shows nothing beyond unclaimed mechanical adjustments to the needle design claimed in the '056 patent after the November 1984 offer for sale of new biopsy needles, the jury had substantial evidence in support of its finding that the November 1984 offer for sale generated a statutory bar. *See, e.g., Robotic Vision Sys., Inc. v. View Eng'g, Inc.*, 112 F.3d 1163, 1167, 42 USPQ2d 1619, 1623 (Fed.Cir.1997). A contrary view would attribute to the '056 patent additional limitations taken from later developed commercial embodiments. Because the claimed invention had been completed, Engström's new biopsy needle design calls for an outcome different from *Robotic Vision*, 112 F.3d 1163, 42 USPQ2d 1619 (remanded for further fact finding on the completion date of a computer software program), *Micro Chemical*, 103 F.3d at 1544, 41 USPQ2d at 1243 (only a proposed configuration existed and the invention remained to be completed), and *Shatterproof Glass*, 758 F.2d at 623, 225 USPQ at 640 (a reasonable jury could have found that "apparatus and method of the claims were not functional").

III. Policy Considerations

Other than the need for sufficient time to test the

new biopsy needle design, which is not a policy consideration summoned by the November 1984 offer, Bard has not argued that there are policy considerations weighing against imposition of the on sale bar. Since the policies that underlie the bar focus on the inventors attempts to exploit the invention, not whether a potential purchaser was made aware of or understood it, discussion of Phelps' actual knowledge of the details of the invention or the differences between generations of the biopsy gun is irrelevant. *See, e.g., Ferag,* 45 F.3d at 1568, 33 USPQ2d at 1516 ("We emphasize that this is an objective test, and that at its heart lies the inventor's attempt to commercialize the invention.... [T]he measure of the bar is what was offered, not the patentee's intent.") In light of the strong policy of preventing exploitation of the commercial value of an invention while deferring commencement of the statutory term, I would affirm the jury's application of the on sale bar.

BRYSON, *Circuit Judge,* concurring in part and dissenting in part.

I concur in the portion of the court's opinion upholding the jury's verdict of non-infringement ***1379** of the '308 patent. I also concur in the portions of the court's opinion reversing the district court's judgment that the '308 patent is invalid, and overturning the jury's verdict on the issue of fraud. Accordingly, I join parts II-V, VI.A-B, and VII of Judge Newman's opinion.

With respect to portions of the judgment relating to the '056 patent, I agree with Chief Judge Mayer that the '056 patent is invalid under the "on- sale bar" of 35 U.S.C. § 102(b), although I take a somewhat different analytical path to that conclusion, as discussed below. Because I conclude that the '056 patent is invalid based on the on-sale bar, I do not reach the other grounds on which the jury found the '056 patent invalid.

Finally, Chief Judge Mayer and I agree that the jury verdict on M3's antitrust counterclaim must be affirmed. Because we do not uphold all of the grounds on which the jury found liability, however, we conclude that the jury may have improperly assessed damages on liability grounds that cannot stand. We therefore must remand for further proceedings to determine the proper amount of damages to be assessed on the antitrust counterclaim.

I

With respect to the on-sale bar, I believe that the June 1985 sale of 250 needles from Radiplast to Pharmaseal was sufficient to support the jury's verdict that the asserted claims of the '056 patent were rendered invalid by a sale more than one year before July 30, 1986, the effective filing date of the patent. It is undisputed that the needles sold in June 1985 embodied the invention of the '056 patent . Whether that sale was sufficient to invoke the on-sale bar turns on whether the sale falls within the "experimental purpose" exception to the on-sale bar.

A

In the summer of 1984, Radiplast began looking for a company "to distribute and promote the sales of [its] biopsy instruments in the United States." Pharmaseal, a potential distributor of the instruments, sent a telex to Radiplast stating that "before any formal purchasing plans can be made," it would have to conduct field trials "to determine the performance and specimen quality of your biopsy device and disposable needle." Pharmaseal sent letters to several hospitals in December 1984 inviting them to participate in a "field trial as a potential sales/distribution system for Radiplast devices."

Radiplast responded by telex on January 21, 1985, setting a price for the needles to be used in Pharmaseal's field trial and offering large-quantity discounts for batches of up to 50,000 needles. Radiplast's telex stated that "in order to be able to deliver both needles and instruments in beginning of March [1985], we need a [telex] order, preferably this week." It also stated that "we have to meet and discuss more in detail all things related with the marketing of our biopsy instrument in U.S." With respect to Pharmaseal's proposed field trial, Radiplast merely suggested that "if you would like [Dr. Lindgren, the inventor] to visit the hospitals performing the trial, in order to help them get started, he will be happy to help you."

Pharmaseal agreed to purchase the instruments and, on March 28, 1985, placed an order for 10 biopsy guns and 250 needles from Radiplast. The

instruments were shipped in June 1985. It is undisputed that the June 1985 transaction constituted a sale and that the needles sold at that time embodied the invention of the '056 patent.

Pharmaseal conducted in-house testing of the devices in July 1985 before releasing the products to hospitals for the field trials. Following the in-house testing, Pharmaseal reported only minor problems and made minor manufacturing suggestions, such as recommending that Radiplast strengthen the stylet hub design and add a buffing operation to the cannula grinding process.

Although Bard contends that Dr. Lindgren attended some of the field trials and that Radiplast "was continually advised by Pharmaseal of [their] progress," Dr. Lindgren ***1380** testified that he did not exercise any control over the tests, that he did not recall ever seeing the instrument used during a test, and that he did not receive or maintain any data from the tests. Bard appears to concede that the test results were not maintained in confidence, and it points to no evidence showing that the primary purpose of the tests was to ensure that the claimed features of the invention would operate as intended.

The field testing was performed at the behest of Pharmaseal, the purchaser, not Radiplast or the inventor. Pharmaseal "assumed primary responsibility" for the tests, while Radiplast merely "had an ongoing interest" in the progress of the trials and "was kept informed" of the progress of the field trials. During the field trials, Pharmaseal and Radiplast continued to discuss market potential, potential prices and volumes, and an instructional videotape to teach proper use of the instruments.

B

Bard argues that the jury verdict cannot stand because the in-house testing at Pharmaseal and the hospital field trials show that the sale was for experimental testing purposes. The so-called "experimental testing" exception to the on-sale bar applies only if commercial exploitation is "merely incidental to the primary purpose of experimentation to perfect the invention." *Barmag Barmer Maschinenfabrik AG v. Murata Mach., Ltd.*, 731 F.2d 831, 839, 221 USPQ 561, 567 (Fed.Cir.1984). In determining whether the inventor made the sale in question for purposes of determining whether the invention would work for its intended purpose, a court must consider various factors, such as the amount of control the inventor exercised over the testing; the length of the test period; whether any payment was made; whether there was a secrecy obligation; whether progress records were kept; whether someone other than the inventor conducted the experiments; and the degree of commercial exploitation during the tests in relation to the purpose of the experimentation. *Baker Oil Tools, Inc. v. Geo Vann, Inc.*, 828 F.2d 1558, 1564, 4 USPQ2d 1210, 1214 (Fed.Cir.1987). Certain factors, such as the requirement that the inventor control the testing, that detailed progress records be kept, and that the purported testers know that testing is occurring, are critical to proving experimental purpose. *Lough v. Brunswick Corp.*, 86 F.3d 1113, 1120, 39 USPQ2d 1100, 1105 (Fed.Cir.1996) ("if the inventor has no control over the alleged experiments, he is not experimenting"); *see generally* 2 Donald S. Chisum, *Patents* § 6.02[7][c] (1998).

The evidence shows that Radiplast's primary purpose in making the sale to Pharmaseal was to market the patented invention through Pharmaseal, not to conduct tests to determine whether the claimed invention would work for its intended purpose. Neither the in-house testing at Pharmaseal nor the field trials at hospitals were conducted under the control or supervision of the inventor or Radiplast; instead, the tests were proposed, controlled, and monitored by Pharmaseal, the purchaser. Dr. Lindgren, the inventor, admitted at trial that he had no control over the field trials, that he did not maintain any test data, and that he did not recall receiving any test results. Radiplast was not aware of the identity of the patients in the field tests, the organs that were being biopsied, or the types of tests being performed; indeed, the patients were apparently not even informed that the biopsies were being conducted as part of a test. The hospitals participating in the field trials were told that the trials were intended as "a potential sales/distribution system for Radiplast devices." There is no evidence that any secrecy agreements were made with Pharmaseal, the hospitals, or any of the test participants. Finally, it is undisputed that Pharmaseal paid for the instruments and needles used in the tests. All of these factors point away from the conclusion that the sale was made for purposes of experimentation. *See Western Marine Elecs., Inc. v. Furuno Elec. Co.*, 764 F.2d 840, 846,

226 USPQ 334, 339 (Fed.Cir.1985) (no experimental use where evidence pointed to market testing rather than experimentation).

***1381** Significantly, at the time of the sale of 250 needles in June 1985, Radiplast had an open offer to sell large quantities of needles to Pharmaseal at bulk discount prices. The January 21, 1985, telex had offered batches of up to 50,000 needles for a specific price, and smaller quantities of 10,000 and 20,000 needles for somewhat higher prices. The offer of such large quantities of needles was clearly for commercial, rather than experimental, purposes, and by June 1985 it was clear that the needles that were being offered to Pharmaseal embodied the later-claimed invention. The bulk purchase offer provides further evidence that the June 1985 sale was not for experimental purposes. *See Seal-Flex, Inc. v. Athletic Track & Court Constr.*, 98 F.3d 1318, 1325, 40 USPQ2d 1450, 1455 (Fed.Cir.1996) (Bryson, J., concurring) ("if the sale or offer in question embodies the invention for which a patent is later sought, a sale or offer to sell that is primarily for commercial purposes and that occurs more than one year before the application renders the invention unpatentable"). Thus, it appears that Radiplast was marketing the later-claimed needles commercially at least by late June 1985. Its willingness to sell smaller quantities of needles to Pharmaseal to use in its field tests was evidently an accommodation to Pharmaseal, which conducted its own tests before distributing the needles to hospitals and doctors. The fact that Radiplast recognized that Pharmaseal intended to test the needles before distributing them in bulk, however, did not make Radiplast's offer and sale in 1985 any less commercial in nature.

The facts of this case are analogous to those in *U.S. Environmental Products, Inc. v. Westall,* 911 F.2d 713, 15 USPQ2d 1898 (Fed.Cir.1990). In *Westall,* this court affirmed a district court's conclusion that a patent was invalidated by a sale more than one year before the filing date. That conclusion was based primarily on (1) the lack of written progress records and the failure to adhere to a testing schedule; (2) the inventor's failure to maintain control over the testing; and (3) promotion of the invention during the testing. *Id.* at 717-18. In this case, as in *Westall,* the evidence shows that neither the in-house tests at Pharmaseal nor the field tests at hospitals were under the control of the inventor or his company. There is little or no evidence of any written progress records; indeed, the inventor was apparently never provided with any test results. Finally, the communications between Radiplast and Pharmaseal throughout the purported testing period emphasized commercial sales and projections, not controlled experimentation.

Bard relies heavily on *Continental Can Co. USA, Inc. v. Monsanto Co.*, 948 F.2d 1264, 20 USPQ2d 1746 (Fed.Cir.1991), for the proposition that providing price estimates for future sales does not otherwise vitiate the experimental testing exception. In *Continental,* however, this court noted that "no sales were ever made"; there was a joint development project between two companies to develop the invention; and the project was "cloaked in confidentiality." 948 F.2d at 1269-70, 20 USPQ2d at 1750. Because the circumstances in *Continental* are so different from the circumstances in this case, *Continental* is of no help to Bard.

C

Bard also contends that the Pharmaseal sale cannot constitute a bar under 35 U.S.C. § 102(b) because Radiplast did not make a profit on the transaction. The jury heard testimony, however, suggesting that Radiplast made a 60% profit on the Pharmaseal sale. Even ignoring any actual profit on the devices used in the field trials, it is clear that the Pharmaseal transaction was made primarily to develop a market for future sales, not primarily to test the claimed invention. At any rate, the failure to turn a profit is not determinative. "A patent owner may have created an on-sale bar despite *losing* money on a sale." *U.S. Envtl. Prods., Inc. v. Westall,* 911 F.2d 713, 717, 15 USPQ2d 1898, 1902 (Fed.Cir.1990).

II

In support of its antitrust counterclaim, M3 presented three theories to the jury: (1) ***1382** that Bard committed fraud in the procuring its patents (the *Walker Process* theory); (2) that Bard acted in bad faith in enforcing its patents (the "sham litigation" theory), and (3) that Bard modified its Biopty gun for the purpose of preventing its competitors' needles from being used in that gun. Bard challenges the sufficiency of the evidence to support the jury's verdict on each of those three

theories. The panel is unanimous in concluding that the evidence is insufficient to support liability on the *Walker Process* and "sham litigation" theories. Chief Judge Mayer and I agree, however, that there is sufficient evidence to affirm the jury's antitrust liability verdict based on Bard's gun modification program, for the reasons set forth below.

A

[56] The jury considered evidence that Bard modified its Biopty gun to prevent its competitors' non-infringing, flangeless needles from being used in Bard's guns. By special verdicts, the jury found that there was a relevant product market for replacement needles for fully automated reusable biopsy guns, that Bard had monopoly power in that market, and that it had acquired or maintained its monopoly power in that market through restrictive or exclusionary conduct.

In order to prevail on its claim of an antitrust violation based on Bard's modification of its Biopty gun to prevent the use of competing replacement needles, M3 was required to prove that Bard made a change in its Biopty gun for predatory reasons, *i.e.*, for the purpose of injuring competitors in the replacement needle market, rather than for improving the operation of the gun. *See In re IBM Peripheral EDP Devices Antitrust Litig.*, 481 F.Supp. 965, 1002 (N.D.Cal.1979), *aff'd sub. nom. Transamerica Computer Co. v. International Bus. Mach. Corp.*, 698 F.2d 1377 (9th Cir.1983); *see generally* 1 ABA, *Antitrust Law Developments* 286-87 (4th ed.1997). Bard argues that the evidence showed that absent patent protection for Bard's devices, M3 could still compete in the relevant market. While the evidence of Bard's market power was in dispute, the jury specifically found that Bard enjoyed monopoly power in the market for replacement needles. The evidence was sufficient to support the jury's verdict on that point and also to support the jury's conclusion that Bard maintained its monopoly position by exclusionary conduct, to wit, modifying its patented gun in order to exclude competing replacement needles.

The dissent on this issue starts from the premise that the modification to Bard's Biopty gun was an "improvement" and argues from that premise that to hold Bard liable for the modification would have the "pernicious" effect of penalizing innovators for making improvements to their products. The dissent's premise, however, is contrary to the jury's verdict, which was supported by the evidence. Although Bard contended at trial that it modified its Biopty gun to make it easier to load and unload, there was substantial evidence that Bard's real reasons for modifying the gun were to raise the cost of entry to potential makers of replacement needles, to make doctors apprehensive about using non-Bard needles, and to preclude the use of "copycat" needles. One internal Bard document showed that the gun modifications had no effect on gun or needle performance; another internal document showed that the use of non-Bard needles in the gun "could not possibly result in injury to either the patient or the physician." In view of that evidence, the jury could reasonably conclude that Bard's modifications to its guns constituted "restrictive or exclusionary conduct" in a market over which it had monopoly power.

The dissent also takes issue with the jury instructions, contending that they failed properly to frame a charge of predatory conduct that comports with established criteria of antitrust liability. Because Bard did not challenge the court's instructions, however, the legal sufficiency of the jury charge on the antitrust issues is not properly before us on appeal. To be entitled to relief based on asserted errors in the court's instructions to ***1383** the jury, Bard was required to challenge those instructions in this court and demonstrate that it timely objected to those instructions in the district court. Bard did neither, but instead based its argument entirely on the sufficiency of the evidence. Because the evidence is sufficient to support the verdict on the gun modification theory of liability, the jury's liability verdict must stand. *See Mangren Research & Dev. v. National Chem. Co.*, 87 F.3d 937, 942 n. 3 (7th Cir.1996); *Composite Marine Propellers, Inc. v. Van Der Woude*, 962 F.2d 1263, 1265 (7th Cir.1992).

B

While we affirm Bard's liability on the antitrust counterclaim, that does not necessarily mean that the jury's damage award of $1.5 million can be sustained. M3 presented evidence of three different markets (guns, guns and needles, and replacement needles) in which Bard allegedly

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caused antitrust injury, and the jury found Bard liable for injury in each market. The damages portion of the verdict, however, merely indicated a general award of $1.5 million without attribution to a particular market or exclusionary practice.

M3's evidence concerning Bard's gun modification program was relevant only to the replacement needle market. Because we have concluded that the evidence concerning Bard's activities in the other two markets cannot support antitrust liability, the question arises as to whether the $1.5 million damages award can be supported solely on the basis of the injury Bard's actions caused to M3 in the replacement needle market. That issue was not briefed on appeal, and the record, so far as we can ascertain, does not provide clear guidance as to the proper allocation of damages due to the injury suffered by M3 in the injury replacement needle market. Consequently, we vacate the antitrust damages award and remand to the district court to consider, after additional hearing or limited retrial, if necessary, the proper amount of damages attributable to Bard's gun modification program. *See MCI Communications Corp. v. American Tel. & Tel. Co.*, 708 F.2d 1081, 1166-67 (7th Cir.1983).

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H
Briefs and Other Related Documents

United States Court of Appeals,
Federal Circuit.

The GILLETTE COMPANY, Plaintiff-Appellant,
v.
S.C. JOHNSON & SON, INC., Defendant-Appellee.

No. 90-1320.

Nov. 20, 1990.

Assignee of a patent for postfoaming shaving gel brought patent infringement action, and infringement defendant brought declaratory judgment action of invalidity and unenforceability against assignee. The actions were consolidated. The United States District Court for the District of Massachusetts, Collings, United States Magistrate, entered judgment for assignee, and defendant appealed. The Court of Appeals, Rich, Circuit Judge, held that the patent was not invalid for obviousness.

Affirmed.

West Headnotes

[1] Patents ⇐112.3(1)
291k112.3(1) Most Cited Cases

Claims of patent holder were entitled to presumption of validity and challenger faced burden of showing, by clear and convincing evidence, their invalidity.

[2] Patents ⇐112.3(1)
291k112.3(1) Most Cited Cases

Challenger's burden of proving invalidity of claims of patent holder was not lessened by patent holder's introduction at trial of prior art not before Patent and Trademark Office during prosecution; fact that validity of those claims had previously been upheld in earlier litigation was also to be given weight, though not stare decisis effect.

[3] Patents ⇐21
291k21 Most Cited Cases

[3] Patents ⇐22
291k22 Most Cited Cases

Focusing on obviousness of substitutions and differences, instead of invention as whole, is legally improper way to simplify often difficult termination of obviousness. 35 U.S.C.A. § 103.

[4] Patents ⇐16.25
291k16.25 Most Cited Cases

Patent for postfoaming shaving gel was not invalid for obviousness; although individual components of substance were concededly well known at time of invention, prior art made no suggestion of gel, much less one in which water- soluble polymers were used. 35 U.S.C.A. § 103.

Patents ⇐328(2)
291k328(2) Most Cited Cases

2,995,521. Cited.

Patents ⇐328(2)
291k328(2) Most Cited Cases

3,541,581, 3,541,581. Valid.
***720** Robert E. Hillman, Fish & Richardson, Boston, Mass., argued for plaintiff-appellant. With him on the brief were Robert W. Furlong, Gregory A. Madera and Heidi E. Harvey.

Robert L. Baechtold, Fitzpatrick, Cella, Harper & Scinto, New York City, argued for defendant-appellee. With him on the brief were Henry J. Renk and Nicholas N. Kallas.

Before RICH, NEWMAN, and CLEVENGER,

Circuit Judges.

RICH, Circuit Judge.

This appeal is from the July 31, 1989 judgment of the U.S. District Court for the District of Massachusetts (Collings, U.S.M.), [FN1] holding claims 1, 3, 8-10, 12-18 and 21-23 of Patent No. 3,541,581 to Monson on a shaving preparation not invalid under 35 USC 103 and infringed by the Gillette Company (Gillette). *See Gillette Co. v. S.C. Johnson & Son, Inc.,* 12 USPQ2d 1929, 1989 WL 87374 (D.Mass.1989), *reconsideration *721 denied,* 15 USPQ2d 1795, 1990 WL 36143 (D.Mass.1990). Gillette appeals only on validity and does not contest infringement. We affirm.

FN1. By consent of the parties, the case was referred to the United States Magistrate for trial and entry of judgment pursuant to 28 USC 636(c). We refer herein to the opinions of the magistrate as those of the district court.

I. BACKGROUND

S.C. Johnson & Son (Johnson) is assignee of the Monson patent, which issued November 17, 1970 and is now expired. Although the patent title is "Package Containing A Post-Foaming Gel," the claims are drawn to a "stable, post-foaming gel" composition. The term "post-foaming" means that the claimed composition remains a gel as it is expelled from its container but foams up after it is spread over the user's skin. Johnson has marketed a commercial embodiment of the claimed composition under the well-known EDGE trademark since 1970.

Although claims 1, 3, 8-10, 12-18 and 21-23 are appealed, claim 1 is representative and will suffice for our purposes. Claim 1 reads:

> 1. A cleansing or cosmetic composition in the form of a stable, post-fo [a]ming gel consisting essentially of about 40-90% by weight water, about 4-25% by weight water-soluble soap, about 0.5-12% by weight volatile liquid post- foaming agent selected from the group consisting of saturated aliphatic hydrocarbons, halogenated hydrocarbons and mixtures thereof, and about 0.01-5% by weight of at least one water-soluble gelling agent which forms in said composition, a gel having a yield value sufficiently high to substantially restrain said composition from foaming for at least about 60 seconds, under static ambient conditions.

The controversy here revolves around the "water-soluble gelling agent" component of the claimed composition, which according to Monson's specification can be chosen from "water-soluble derivatives of naturally occurring substances such as cellulose, sucrose and glucose." As further disclosed by Monson, the gelling agent functions to modify the consistency of the composition by imparting "yield value," or flow resistance. The resulting solid state properties of the gel restrain its foaming for a desired period of time, i.e., for about 60 seconds at 63° F. and one atmosphere. In preferred embodiments of the claimed composition wherein the gelling agent is a cellulose derivative, the water-soluble gelling agent also functions to enhance lubricity, allowing the shaving blade to glide across the user's skin with reduced friction.

During prosecution of the application for the Monson patent, the Patent and Trademark Office (PTO) examiner initially rejected the claims as obvious in view of Estignard-Bluard (Bluard) (U.S. Patent No. 2,995,521) and Friedenberg (U.S. Patent No. 3,240,396). Bluard discloses a "self-foaming" composition which can be formulated to have the consistency of a cream; gel- based compositions are not disclosed. Like Monson's, Bluard's composition can be thought of as "post-foaming" in that it spontaneously foams when spread over a user's skin. It includes soap, water, and foaming agent, as does Monson's. However, Bluard's composition does not contain a *water*-soluble gelling agent; he uses an *oil*-soluble "jellifying" agent, namely aluminum octoate. Bluard discloses that when saponaceous [i.e., soapy] compositions having the consistency of a cream are used (for example, shaving creams), it is preferable to "thicken the organic liquid [foaming agent] by means of a jellifying agent," in order to "avoid any separation of the organic liquid and the thick saponaceous composition during storage or use...." Thus, Bluard's jellifying agent is intended to thicken the organic phase, not the aqueous phase, of his

self-foaming composition.

Friedenberg discloses that colloidal materials including certain cellulose derivatives are useful as stabilizers in shaving creams or shampoos formulated as "very dilute emulsions" of at least 75%, preferably 85%, water. Friedenberg does not disclose the use of these colloidal materials in a gel-based composition, nor in a post-foaming composition.

British Patent Specification No. 838,913 to Colgate-Palmolive (Colgate) was also cited by the examiner to "show the state of the art." Colgate discloses the addition of *722 colloidal materials such as cellulose derivatives to "soap solutions of low concentration," so as to stabilize the lather of the disclosed "aerosol shave creams."

The examiner initially took the position that it would have been obvious to one skilled in the art to "substitute the claimed jellifying agents, i.e. colloids," for the jellifying agent [aluminum octoate] shown in Bluard, in view of Friedenberg, "who show[s] said agents are well known for the same purpose in the same type of compositions[,] i.e. forming shaving compositions."

In response to the initial rejection, Johnson submitted results of consumer testing in which the formulation of Example 1 of Monson was unanimously preferred by a panel of shavers over a modified Monson formulation wherein Bluard's aluminum octoate had been substituted for the claimed water-soluble gelling agent. A second panel unanimously preferred the Monson formulation over a "self-foaming shaving cream" formulated according to Example 11 of Bluard. Eight out of nine members of a third panel preferred the Monson formulation over another "self-foaming shaving cream" formulated according to Example 10 of Bluard. After considering these showings, the examiner allowed the Monson application. [FN2] Johnson's resulting EDGE gel product went on to become an overwhelming commercial success; the district court found that EDGE accounted for more than 20% of the market for shaving products at the time of trial. *Gillette,* 12 USPQ2d at 1962.

> Johnson's tests demonstrated that Monson's product was, in fact, superior or produced results superior to any of Bluard's formulations. There was no evidence offered at trial which would support a contrary conclusion. *Gillette,* 12 USPQ2d at 1960.

Johnson sued Gillette on September 1, 1983, in the Northern District of Illinois, charging infringement of the Monson patent by Gillette's "Foamy Gel" product. Gillette in turn brought a declaratory judgment action of invalidity and unenforceability against Johnson in the District of Massachusetts. The Illinois action was transferred to Massachusetts and consolidated with the suit there, where trial took place. After the bench trial, Magistrate Collings held in a very thorough opinion that Gillette had failed to prove that the Monson patent was invalid on the ground of obviousness, that Gillette had infringed by its manufacture, use, and sale of "Foamy Gel," that the infringement was willful, and that the case was "exceptional" under 35 USC 285, such that the court was authorized to award attorney fees to Johnson. *Id.* at 1964. Gillette then moved for reconsideration of the decision. In his memorandum opinion of March 28, 1990, fully answering Gillette's arguments, Magistrate Collings denied Gillette's motion and reaffirmed his holdings. *See* 15 USPQ2d at 1795. This appeal followed. Damages have yet to be determined.

This court previously upheld the validity of the Monson patent in *S.C. Johnson & Son, Inc. v. Carter-Wallace, Inc.*, 781 F.2d 198, 228 USPQ 367 (Fed.Cir.1986). Gillette was not a party to the *Carter-Wallace* litigation. The primary reference before the trial court there was, as here, the Bluard patent. The Friedenberg patent was also considered, as well as other secondary references not involved in this suit. *See S.C. Johnson & Son, Inc. v. Carter-Wallace, Inc.*, 614 F.Supp. 1278, 1299-1301, 225 USPQ 1022, 1034-36 (S.D.N.Y.1985) (holding that Carter-Wallace had failed to sustain its burden of proving facts which support a conclusion of obviousness by clear and convincing evidence).

II. ISSUES

FN2. As the district court found,

1. Whether the district court erred in its application of 35 USC 103 to the facts of this case.

2. Whether Johnson should be awarded its attorney fees and expenses incurred in opposing this appeal.

III. DISCUSSION

1. Standard of Review

[1][2] The claims of Monson are entitled to a presumption of validity and Gillette ***723** faces the burden of showing, by clear and convincing evidence, their invalidity. *American Hoist & Derrick Co. v. Sowa & Sons, Inc.,* 725 F.2d 1350, 1359, 220 USPQ 763, 770 (Fed.Cir.), *cert. denied,* 469 U.S. 821, 105 S.Ct. 95, 83 L.Ed.2d 41 (1984). This burden is not lessened by Gillette's introduction at trial of prior art not before the PTO during prosecution. *Id.* at 1358-60, 220 USPQ at 770-71. The fact that the validity of those claims has previously been upheld in an earlier litigation is also to be given weight, though not *stare decisis* effect. *See Stevenson v. Sears, Roebuck & Co.,* 713 F.2d 705, 711, 218 USPQ 969, 974 (Fed.Cir.1983).

The only district court conclusion on appeal here is the determination of nonobviousness. Our precedent holds that the question of obviousness is one of law, freely reviewable by this court. *See Newell Cos. v. Kenney Mfg. Co.,* 864 F.2d 757, 762, 9 USPQ2d 1417, 1421 (Fed.Cir.1988) ("the trial court's conclusion on obviousness is subject to full and independent review by this court."), *cert. denied,* 493 U.S. 814, 110 S.Ct. 62, 107 L.Ed.2d 30 (1989); *Gardner v. TEC Systems, Inc.,* 725 F.2d 1338, 1344, 220 USPQ 777, 782 (Fed.Cir.) ("A conclusion on obviousness is one of law and subject to full and independent review in this court."), *cert. denied,* 469 U.S. 830, 105 S.Ct. 116, 83 L.Ed.2d 60 (1984); *Union Carbide Corp. v. American Can Co.,* 724 F.2d 1567, 1573, 220 USPQ 584, 589 (Fed.Cir.1984) ("this court reviews the issue of obviousness as one of law on which it must exercise independent judgment....").

2. Validity

The crux of Gillette's appeal is that the district court misapplied 35 USC 103 by adopting an overly stringent test for obviousness. More specifically, Gillette urges that the district court, in reliance on *Kimberly-Clark Corp. v. Johnson & Johnson,* 745 F.2d 1437, 223 USPQ 603 (Fed.Cir.1984), committed legal error by requiring that a claimed combination be "clearly suggested" by the prior art in order to be obvious. In Gillette's view, this "clear suggestion" test is tantamount to requiring an explicit statement of the claimed subject matter, which would rebut novelty altogether. We did not go that far in *Kimberly-Clark,* nor do we now.

Gillette ignores the fact that in *Kimberly-Clark,* not only did we "fail to find a clear suggestion of the claimed subject matter," 745 F.2d at 1449, 223 USPQ at 610, we found "not the slightest suggestion" in the art of the claimed dual function adhesive. *Id.* at 1447, 223 USPQ at 609. Similarly, the district court in this case found *no* suggestion in the prior art, much less a clear suggestion, of the claimed composition viewed as a whole as it must be under § 103. *See Gillette,* 12 USPQ2d at 1953, 1956.

As to whether "clear suggestion" is a proper test of obviousness, we note initially that *Kimberly-Clark* is not the only instance in which we have made use of that phrase in a discussion of obviousness. [FN3] ***724** Various other formulations of the requisite level of suggestion for combining prior art disclosures have been set forth in our precedent. For example, we have said that "[o]bviousness does not require absolute predictability of success.... For obviousness under § 103, all that is required is a reasonable expectation of success." *In re O'Farrell,* 853 F.2d 894, 903-04, 7 USPQ2d 1673, 1681 (Fed.Cir.1988).

FN3. *See, e.g., In re Kulling,* 897 F.2d 1147, 1149, 14 USPQ2d 1056, 1058 (Fed.Cir.1990) ("Although Miller's specific process is designed to recover the contents of the filter cake rather than the filtrate, it *clearly suggests* that when the wash solution is equivalent to an earlier existing solution, the latter may be used as a source for the former"); *In re Beaver,* 893 F.2d 329, 331, 13 USPQ2d 1409, 1411 (Fed.Cir.1989) (Nies, J., dissenting) ("I agree with the board that the references *clearly suggest* that the film magazine be interlocked in alignment with the focal plane of the lens"); *Ryco, Inc. v. Ag-Bag*

> *Corp.,* 857 F.2d 1418, 1425, 8 USPQ2d 1323, 1329 (Fed.Cir.1988) ("This teaching of the Nikkel patent, when considered with the Silopress machine, *clearly suggests* the substitution of the curved stripper bars for the stripper basket"); *Vandenberg v. Dairy Equipment Co.,* 740 F.2d 1560, 1568, 224 USPQ 195, 199 (Fed.Cir.1984) ("Thus, the prior art *clearly* teaches and *suggests* the combination of all the elements found in the '575 patent"); *Lear Siegler, Inc. v. Aeroquip Corp.,* 733 F.2d 881, 890, 221 USPQ 1025, 1032 (Fed.Cir.1984) ("Nevertheless, such a removable cap is *clearly suggested* by the Avrea patent in combination with prior art patents to Woodward and Kateley which do show removable caps which could effect such a function, though not involving removable retraction stems"); *In re Kronig,* 539 F.2d 1300, 1304, 190 USPQ 425, 428 (CCPA 1976) ("Obviousness under 35 U.S.C. § 103 does not require absolute predictability, ... and it is sufficient here that Yasui et al. *clearly suggests* doing what appellants have done, viz., adding water") (citations omitted); *In re Gershon,* 372 F.2d 535, 539, 152 USPQ 602, 605 (CCPA 1967) ("We think it is sufficient that the prior art *clearly suggests* doing what appellants have done, although an underlying explanation of exactly why this should be done, other than to obtain the expected superior beneficial results, is not taught or suggested in the cited references.") (Emphases all ours.)

We need not decide here whether "clear suggestion" is an overly rigorous test for obviousness, however. As noted above, this court independently reviews obviousness determinations. In reaching our own conclusion regarding obviousness, we need not give deference to a particular analytical construct utilized in a district court's opinion. Our task is to review the district court's *judgment.*

[3] What we stressed in *Kimberly-Clark,* and have repeated many times since, was that 35 USC 103 requires analysis of a claimed invention *as a whole:*

> It is true that [the claimed invention] consists of a combination of old elements so arranged as to perform certain related functions. It is immaterial to the issue, however, that all of the elements were old in other contexts. *What must be found obvious to defeat the patent is the claimed combination.*

745 F.2d at 1448, 223 USPQ at 609-10 (emphasis added). Focusing on the obviousness of substitutions and differences, instead of on the invention as a whole, is a legally improper way to simplify the often difficult determination of obviousness. *Hybritech, Inc. v. Monoclonal Antibodies, Inc.,* 802 F.2d 1367, 1383, 231 USPQ 81, 93 (Fed.Cir.1986), *cert. denied,* 480 U.S. 947, 107 S.Ct. 1606, 94 L.Ed.2d 792 (1987).

[4] Here, the "claimed combination" is a composition whose individual components were concededly well known at the time of the invention. As the district court found, however, the prior art made no suggestion, *clear or otherwise,* of substituting the claimed water-soluble polymers for Bluard's oil- soluble jellifying agent; nothing in the prior art suggested the idea of a post-foaming shaving *gel,* much less one in which water-soluble polymers were used.

Gillette argues that prior art references such as Friedenberg, Colgate, and U.S. Patent No. 3,072,535 to Mueller would provide the necessary motivation to one of ordinary skill to make the suggested substitution. While these references do disclose the use of water-soluble polymers in shaving preparations, none of those preparations appears to be a gel. [FN4] Moreover, none are post-foaming in nature. *See Gillette,* 12 USPQ2d at 1947.

> FN4. Counsel at oral argument disagreed on whether the Friedenberg and Colgate references disclosed gels. At trial, however, when Gillette's own expert, Dr. Schwartz, was asked whether the Friedenberg composition was a gel or a liquid, he answered that it was a liquid. When asked whether the Colgate patent disclosed a liquid or a gel, Dr. Schwartz again answered, "a liquid."

In any event, the Bluard patent, which is the closest

prior art and the only reference to disclose a post-foaming preparation, would likely *discourage* the art worker from attempting the substitution suggested by Gillette. Bluard recommends using aluminum octoate to thicken the organic phase in order to make it compatible with a thick aqueous soap phase. Contrary to the district court's understanding, [FN5] water-soluble polymers would not serve this purpose in Bluard's composition. Insofar as the district court's "understanding" was a finding of fact, we set it aside as clearly erroneous ***725** under Fed.R.Civ.P. 52(a). We agree with Johnson that the oil-solubility and water-insolubility of aluminum octoate is critical to Bluard's purpose of thickening the organic phase.

> FN5. Although the district court recognized a fundamental difference between the compositions of Monson and Bluard, i.e. that Monson's gelling agent is present in the aqueous phase of his composition, while Bluard's "jellifying agent" is added to the organic liquid [foaming agent], the court failed to see the significance of this fact. We refer to the court's statement that "[a]lthough the suggested 'jellifying agent', i.e. aluminum octoate, was water-insoluble, so far as I can understand, it was not its water-insolubility which caused it to perform the functions for which Bluard employed it." *Gillette,* 12 USPQ2d at 1947.

Johnson takes the position that, at most, the substitution suggested by Gillette may be "obvious to try." As we recently explained,

> [a]n "obvious-to-try" situation exists when a general disclosure may pique the scientist's curiosity, such that further investigation might be done as a result of the disclosure, but the disclosure itself does not contain a sufficient teaching of how to obtain the desired result, or that the claimed result would be obtained if certain directions were pursued.

In re Eli Lilly & Co., 902 F.2d 943, 945, 14 USPQ2d 1741, 1743 (Fed.Cir.1990). However, we have consistently held that "obvious to try" is not to be equated with obviousness under 35 USC 103. *See O'Farrell,* 853 F.2d at 903, 7 USPQ2d at 1680; *Hybritech,* 802 F.2d at 1380, 231 USPQ at 91; *Jones v. Hardy,* 727 F.2d 1524, 1530, 220 USPQ 1021, 1026 (Fed.Cir.1984).

An analysis of obviousness of a claimed combination must include consideration of the results achieved by that combination. As we explained in *Interconnect Planning Corp. v. Feil,* 774 F.2d 1132, 1143, 227 USPQ 543, 551 (Fed.Cir.1985):

> Critical to the analysis is an understanding of the particular results achieved by the new combination. The claims here at issue are directed to a combination of known components of telephone systems in an admittedly new way to achieve a new total system. Neither the district court in its opinion, nor the defendants, identified any suggestion in the prior art that the components be combined as they were by Feil or that such combination could achieve the advantages of the Feil system.

We see no reason why the above reasoning from *Interconnect,* a case that dealt with a mechanical invention, should not apply with equal weight to the present chemical case. There is no question that each component of Monson's composition was separately known in the prior art. What was not known or suggested, however, was the composition that resulted from the combination of those components, and its unique properties. As Johnson succinctly states,

> The Monson invention is a post-foaming gel composed of four components, all of which interact to provide a particular kind of gel with suitable shaving characteristics--in fact, shaving properties superior to any other product on the market. The invention as a whole is that composition, with its gel form, and its properties.

These superior properties resulting from Monson's invention have not been questioned by Gillette.

Gillette's counsel urged at oral argument that commercial considerations are not "what makes patentability." To the contrary, an analysis of obviousness *must* address objective evidence of nonobviousness, if any. *See Graham v. John Deere Co.,* 383 U.S. 1, 17-18, 86 S.Ct. 684, 694, 15 L.Ed.2d 545, 148 USPQ 459, 467 (1966). Objective evidence such as commercial success, failure of others, long-felt need, and unexpected results must be considered before a conclusion of

obviousness is reached. *Hybritech,* 802 F.2d at 1380, 231 USPQ at 90.

We hold that the objective evidence of Johnson's commercial success with EDGE supports the nonobviousness of Monson's claims. As the district court found, "Johnson's product was new; nothing like it had been marketed before. It was radically different from any other shaving product on the market." 12 USPQ2d at 1963. The district court also found that EDGE's success was due to the product's properties, not increased advertising. *Id.* We see no error, much less clear error, in this finding of fact. Fed.R.Civ.P. 52(a).

Gillette's counsel also asserted at oral argument that through the work of its employees Peloquin and Rader, it "had the very same technology" at the same time as Monson (though not soon enough to represent prior invention). However, Gillette abandoned further research because, it claims, it made a "commercial mistake" in ***726** failing to recognize that this "new-fangled approach" would appeal to consumers. This mistake, Gillette argues, was not due to any technical difficulties with the Peloquin/Rader work, a point on which the record is less than clear. [FN6] We are not persuaded by Gillette's argument that the Peloquin/Rader work evidences the obviousness of Monson's invention. As the district court found,

> FN6. For example, the district court's opinion states, "the evidence of Mr. Peloquin's experiments confirmed the unsatisfactory results which were obtained when Bluard's formulations were used." *Gillette,* 12 USPQ2d at 1960.

> [t]he objective evidence of non-obviousness is that until the Johnson product was introduced and marketed, Gillette did not believe that a post-foaming shaving preparation such as Bluard taught would yield any better results to the shaving population than existing aerosol shaving preparations[,] regardless of whether aluminum octoate or water-soluble polymers were used as the "jellifying" agent.

Gillette, 12 USPQ2d at 1963. Indeed, Gillette's skepticism is relevant and persuasive evidence of the nonobviousness of Monson's invention.

We reject Gillette's remaining argument that other art-recognized advantages of cellulose-based polymers, namely lubricity and consistency enhancement, provide the "suggestion" sufficient to motivate the art worker to substitute them for Bluard's aluminum octoate. This theory boils down to no more than hindsight reconstruction, of the type so aptly described by the poet Milton over three centuries ago:

> The invention all admired, and each how he
> To be the inventor missed; so easy it seemed,
> Once found, which yet unfound most would have thought,
> Impossible!

PARADISE LOST, Part VI, L. 478-501.

In sum, we hold that the district court properly applied the law of 35 USC 103 to the facts of this case.

3. Attorney Fees

Johnson seeks reimbursement of its attorney fees and expenses for this appeal pursuant to 35 USC 285 and Fed.R.App.P. 38. Johnson characterizes the appeal as frivolous, in that Gillette could not reasonably argue that the judgment below was based on legal error or that the district court's findings were clearly erroneous.

Upon the whole record and considering in particular the magistrate's two opinions and the arguments made by Gillette on this appeal, we conclude that the appeal cannot properly be characterized as frivolous. The case of *Mathis v. Spears,* 857 F.2d 749, 8 USPQ2d 1551 (Fed.Cir.1988) cited by Johnson was a much more aggravated situation and is clearly distinguishable on its facts. The request for attorney fees and expenses on appeal is therefore denied.

CONCLUSION

The district court's judgment that Gillette failed to meet its burden of proving by clear and convincing evidence that the subject matter of the appealed claims would have been obvious under 35 USC 103 is affirmed. Johnson's request for attorney fees and expenses incurred by Johnson in connection with this appeal is denied.

AFFIRMED

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